SEQUENCE LISTING

<110> Brunkow, Mary E.
      Galas, David J.
      Kovacevich, Brian
      Mulligan, John T.
      Paeper, Bryan W.
      Van Ness, Jeffrey
      Winkler, David G.

<120> COMPOSITIONS AND METHODS FOR INCREASING
      BONE MINERALIZATION

<130> 240083.508

<140> US
<141> 1999-11-24

<160> 41

<170> FastSEQ for Windows Version 3.0

<210> 1
<211> 2301
<212> DNA
<213> Homo sapien

<400> 1

```
agagcctgtg ctactggaag gtggcgtgcc ctcctctggc tggtaccatg cagctcccac      60
tggccctgtg tctcgtctgc ctgctggtac acacagcctt ccgtgtagtg gagggccagg     120
ggtggcaggc gttcaagaat gatgccacgg aaatcatccc cgagctcgga gagtaccccg     180
agcctccacc ggagctggag aacaacaaga ccatgaaccg ggcggagaac ggagggcggc     240
ctccccacca ccccttgag accaaagacg tgtccgagta cagctgccgc gagctgcact     300
tcacccgcta cgtgaccgat gggccgtgcc gcagcgccaa gccggtcacc gagctggtgt     360
gctccggcca gtgcggcccg gcgcgcctgc tgcccaacgc catcggccgc ggcaagtggt     420
ggcgacctag tgggcccgac ttccgctgca tccccgaccg ctaccgcgcg cagcgcgtgc     480
agctgctgtg tcccggtggt gaggcgccgc gcgcgcgcaa ggtgcgcctg gtggcctcgt     540
gcaagtgcaa gcgcctcacc cgcttccaca accagtcgga gctcaaggac ttcgggaccg     600
aggccgctcg gccgcagaag ggccggaagc cgcggccccg cgcccggagc gccaaagcca     660
accaggccga gctggagaac gcctactaga gcccgcccgc gcccctcccc accggcgggc     720
gccccggccc tgaacccgcg ccccacattt ctgtcctctg cgcgtggttt gattgtttat     780
atttcattgt aaatgcctgc aacccagggc aggggggctga gaccttccag gccctgagga     840
atcccgggcg ccggcaaggc cccctcagc ccgccagctg aggggtccca cggggcaggg     900
gagggaattg agagtcacag acactgagcc acgcagcccc gcctctgggg ccgcctacct     960
ttgctggtcc cacttcagag gaggcagaaa tggaagcatt ttcaccgccc tggggtttta    1020
agggagcggt gtgggagtgg gaaagtccag ggactggtta agaaagttgg ataagattcc    1080
cccttgcacc tcgctgccca tcagaaagcc tgaggcgtgc ccagagcaca agactggggg    1140
caactgtaga tgtggtttct agtcctggct ctgccactaa cttgctgtgt aaccttgaac    1200
tacacaattc tccttcggga cctcaatttc cactttgtaa aatgagggtg gaggtgggaa    1260
taggatctcg aggagactat tggcatatga ttccaaggac tccagtgcct tttgaatggg    1320
cagaggtgag agagagagag agaaagagag agaatgaatg cagttgcatt gattcagtgc    1380
caaggtcact tccagaattc agagttgtga tgctctcttc tgacagccaa agatgaaaaa    1440
caaacagaaa aaaaaaagta aagagtctat ttatggctga catatttacg gctgacaaac    1500
```

```
tcctggaaga agctatgctg cttcccagcc tggcttcccc ggatgtttgg ctacctccac    1560
ccctccatct caaagaaata acatcatcca ttggggtaga aaaggagagg gtccgagggt    1620
ggtgggaggg atagaaatca catccgcccc aacttcccaa agagcagcat ccctcccccg    1680
acccatagcc atgttttaaa gtcaccttcc gaagagaagt gaaaggttca aggacactgg    1740
ccttgcaggc ccgagggagc agccatcaca aactcacaga ccagcacatc ccttttgaga    1800
caccgccttc tgcccaccac tcacggacac atttctgcct agaaaacagc ttcttactgc    1860
tcttacatgt gatggcatat cttacactaa aagaatatta ttgggggaaa aactacaagt    1920
gctgtacata tgctgagaaa ctgcagagca taatagctgc cacccaaaaa tctttttgaa    1980
aatcatttcc agacaacctc ttactttctg tgtagttttt aattgttaaa aaaaaaagt     2040
tttaaacaga agcacatgac atatgaaagc ctgcaggact ggtcgttttt ttggcaattc    2100
ttccacgtgg gacttgtcca caagaatgaa agtagtggtt tttaaagagt taagttacat    2160
atttattttc tcacttaagt tatttatgca aaagtttttc ttgtagagaa tgacaatgtt     2220
aatattgctt tatgaattaa cagtctgttc ttccagagtc cagagacatt gttaataaag    2280
acaatgaatc atgaccgaaa g                                              2301
```

<210> 2
<211> 213
<212> PRT
<213> Homo sapien

<400> 2

```
Met Gln Leu Pro Leu Ala Leu Cys Leu Val Cys Leu Leu Val His Thr
1               5               10              15
Ala Phe Arg Val Val Glu Gly Gln Gly Trp Gln Ala Phe Lys Asn Asp
            20              25              30
Ala Thr Glu Ile Ile Pro Glu Leu Gly Glu Tyr Pro Glu Pro Pro Pro
        35              40              45
Glu Leu Glu Asn Asn Lys Thr Met Asn Arg Ala Glu Asn Gly Gly Arg
    50              55              60
Pro Pro His His Pro Phe Glu Thr Lys Asp Val Ser Glu Tyr Ser Cys
65              70              75              80
Arg Glu Leu His Phe Thr Arg Tyr Val Thr Asp Gly Pro Cys Arg Ser
            85              90              95
Ala Lys Pro Val Thr Glu Leu Val Cys Ser Gly Gln Cys Gly Pro Ala
        100             105             110
Arg Leu Leu Pro Asn Ala Ile Gly Arg Gly Lys Trp Trp Arg Pro Ser
    115             120             125
Gly Pro Asp Phe Arg Cys Ile Pro Asp Arg Tyr Arg Ala Gln Arg Val
    130             135             140
Gln Leu Leu Cys Pro Gly Gly Glu Ala Pro Arg Ala Arg Lys Val Arg
145             150             155             160
Leu Val Ala Ser Cys Lys Cys Lys Arg Leu Thr Arg Phe His Asn Gln
            165             170             175
Ser Glu Leu Lys Asp Phe Gly Thr Glu Ala Ala Arg Pro Gln Lys Gly
            180             185             190
Arg Lys Pro Arg Pro Arg Ala Arg Ser Ala Lys Ala Asn Gln Ala Glu
            195             200             205
Leu Glu Asn Ala Tyr
            210
```

<210> 3
<211> 2301
<212> DNA
<213> Homo sapien

```
<400> 3
agagcctgtg ctactggaag gtggcgtgcc ctcctctggc tggtaccatg cagctcccac      60
tggcccctgtg tctcgtctgc ctgctggtac acacagcctt ccgtgtagtg gagggctagg     120
ggtggcaggc gttcaagaat gatgccacgg aaatcatccc cgagctcgga gagtaccccg      180
agcctccacc ggagctggag aacaacaaga ccatgaaccg ggcggagaac ggagggcggc      240
ctccccacca cccctttgag accaaagacg tgtccgagta cagctgccgc gagctgcact      300
tcacccgcta cgtgaccgat gggccgtgcc gcagcgccaa gccggtcacc gagctggtgt      360
gctccggcca gtgcggcccg gcgcgcctgc tgcccaacgc catcggccgc ggcaagtggt      420
ggcgacctag tgggcccgac ttccgctgca tccccgaccg ctaccgcgcg cagcgcgtgc      480
agctgctgtg tcccggtggt gaggcgccgc gcgcgcgcaa ggtgcgcctg gtggcctcgt      540
gcaagtgcaa gcgcctcacc cgcttccaca accagtcgga gctcaaggac ttcgggaccg      600
aggccgctcg gccgcagaag ggccggaagc cgcggccccg cgcccggagc gccaaagcca      660
accaggccga gctggagaac gcctactaga gcccgcccgc gcccctcccc accggcgggc      720
gccccggccc tgaacccgcg ccccacattt ctgtcctctg cgcgtggttt gattgtttat      780
atttcattgt aaatgcctgc aacccagggc aggggctga gaccttccag gccctgagga      840
atcccgggcg ccggcaaggc cccctcagc ccgccagctg aggggtccca cggggcaggg      900
gagggaattg agagtcacag acactgagcc acgcagcccc gcctctgggg ccgcctacct      960
ttgctggtcc cacttcagag gaggcagaaa tggaagcatt ttcaccgccc tggggtttta     1020
agggagcggt gtgggagtgg gaaagtccag ggactggtta agaaagttgg ataagattcc     1080
cccttgcacc tcgctgccca tcagaaagcc tgaggcgtgc ccagagcaca agactggggg     1140
caactgtaga tgtggttttct agtcctggct ctgccactaa cttgctgtgt aaccttgaac     1200
tacacaattc tccttcggga cctcaatttc cactttgtaa aatgagggtg gaggtgggaa     1260
taggatctcg aggagactat tggcatatga ttccaaggac tccagtgcct tttgaatggg     1320
cagaggtgag agagagagag agaaagagag agaatgaatg cagttgcatt gattcagtgc     1380
caaggtcact tccagaattc agagttgtga tgctctcttc tgacagccaa agatgaaaaa     1440
caaacagaaa aaaaaaagta aagagtctat ttatggctga catatttacg gctgacaaac     1500
tcctggaaga agctatgctg cttcccagcc tggcttcccc ggatgtttgg ctacctccac     1560
ccctccatct caaagaaata acatcatcca ttggggtaga aaaggagagg gtccgagggt     1620
ggtgggaggg atagaaatca catccgcccc aacttcccaa agagcagcat ccctcccccg     1680
acccatagcc atgtttaaa gtcaccttcc gaagagaagt gaaaggttca aggacactgg     1740
ccttgcaggc ccgagggagc agccatcaca aactcacaga ccagcacatc ccttttgaga     1800
caccgccttc tgcccaccac tcacgacac atttctgcct agaaaacagc ttcttactgc     1860
tcttacatgt gatggcatat cttacactaa aagaatatta ttgggggaaa aactacaagt     1920
gctgtacata tgctgagaaa ctgcagagca taatagctgc cacccaaaaa tcttttttgaa    1980
aatcatttcc agacaacctc ttactttctg tgtagttttt aattgttaaa aaaaaaagt     2040
tttaaacaga agcacatgac atatgaaagc ctgcaggact ggtcgttttt ttggcaattc     2100
ttccacgtgg gacttgtcca caagaatgaa agtagtggtt tttaaagagt taagttacat     2160
atttattttc tcacttaagt tatttatgca aaagtttttc ttgtagagaa tgacaatgtt     2220
aatattgctt tatgaattaa cagtctgttc ttccagagtc cagagacatt gttaataaag     2280
acaatgaatc atgaccgaaa g                                               2301
```

```
<210> 4
<211> 23
<212> PRT
<213> Homo sapien

<400> 4
Met Gln Leu Pro Leu Ala Leu Cys Leu Val Cys Leu Leu Val His Thr
1               5                   10                  15
Ala Phe Arg Val Val Glu Gly
            20

<210> 5
<211> 2301
<212> DNA
```

<213> Homo sapien

<400> 5

```
        agagcctgtg ctactggaag gtggcgtgcc ctcctctggc tggtaccatg cagctcccac        60
        tggccctgtg tctcatctgc ctgctggtac acacagcctt ccgtgtagtg gagggccagg        120
        ggtggcaggc gttcaagaat gatgccacgg aaatcatccg cgagctcgga gagtaccccg        180
        agcctccacc ggagctggag aacaacaaga ccatgaaccg ggcggagaac ggagggcggc        240
        ctccccacca cccctttgag accaaagacg tgtccgagta cagctgccgc gagctgcact        300
        tcacccgcta cgtgaccgat gggccgtgcc gcagcgccaa gccggtcacc gagctggtgt        360
        gctccggcca gtgcggcccg gcgcgcctgc tgcccaacgc catcggccgc ggcaagtggt        420
        ggcgacctag tgggcccgac ttccgctgca tccccgaccg ctaccgcgcg cagcgcgtgc        480
        agctgctgtg tcccggtggt gaggcgccgc gcgcgcgcaa ggtgcgcctg gtggcctcgt        540
        gcaagtgcaa gcgcctcacc cgcttccaca accagtcgga gctcaaggac ttcgggaccg        600
        aggccgctcg gccgcagaag ggccggaagc cgcggccccg cgcccggagc gccaaagcca        660
        accaggccga gctggagaac gcctactaga gcccgcccgc gcccctcccc accggcgggc        720
        gccccggccc tgaacccgcg ccccacattt ctgtcctctg cgcgtggttt gattgtttat        780
        atttcattgt aaatgcctgc aacccagggc aggggctga gaccttccag gccctgagga        840
        atcccgggcg ccggcaaggc cccctcagc ccgccagctg aggggtccca cggggcaggg        900
        gagggaattg agagtcacag acactgagcc acgcagcccc gcctctgggg ccgcctacct        960
        ttgctggtcc cacttcagag gaggcagaaa tggaagcatt ttcaccgccc tggggtttta        1020
        agggagcggt gtgggagtgg gaaagtccag ggactggtta agaaagttgg ataagattcc        1080
        cccttgcacc tcgctgccca tcagaaagcc tgaggcgtgc ccagagcaca agactggggg        1140
        caactgtaga tgtggtttct agtcctggct ctgccactaa cttgctgtgt aaccttgaac        1200
        tacacaattc tccttcggga cctcaatttc cactttgtaa aatgagggtg gaggtgggaa        1260
        taggatctcg aggagactat tggcatatga ttccaaggac tccagtgcct tttgaatggg        1320
        cagaggtgag agagagagag agaaagagag agaatgaatg cagttgcatt gattcagtgc        1380
        caaggtcact tccagaattc agagttgtga tgctctcttc tgacagccaa agatgaaaaa        1440
        caaacagaaa aaaaaagta aagagtctat ttatggctga catatttacg gctgacaaac        1500
        tcctggaaga agctatgctg cttcccagcc tggcttcccc ggatgtttgg ctacctccac        1560
        ccctccatct caaagaaata acatcatcca ttggggtaga aaaggagagg gtccgagggt        1620
        ggtgggaggg atagaaatca catccgcccc aacttcccaa agagcagcat ccctcccccg        1680
        acccatagcc atgttttaaa gtcaccttcc gaagagaagt gaaaggttca aggacactgg        1740
        ccttgcaggc ccgagggagc agccatcaca aactcacaga ccagcacatc ccttttgaga        1800
        caccgccttc tgcccaccac tcacggacac atttctgcct agaaaacagc ttcttactgc        1860
        tcttacatgt gatggcatat cttacactaa aagaatatta ttgggggaaa aactacaagt        1920
        gctgtacata tgctgagaaa ctgcagagca taatagctgc cacccaaaaa tcttttttgaa        1980
        aatcatttcc agacaacctc ttactttctg tgtagttttt aattgttaaa aaaaaaaagt        2040
        tttaaacaga agcacatgac atatgaaagc ctgcaggact ggtcgttttt ttggcaattc        2100
        ttccacgtgg gacttgtcca caagaatgaa agtagtggtt tttaaagagt taagttacat        2160
        atttattttc tcacttaagt tatttatgca aaagttttttc ttgtagagaa tgacaatgtt        2220
        aatattgctt tatgaattaa cagtctgttc ttccagagtc cagagacatt gttaataaag        2280
        acaatgaatc atgaccgaaa g                                                   2301
```

<210> 6
<211> 213
<212> PRT
<213> Homo sapien

<400> 6

```
Met Gln Leu Pro Leu Ala Leu Cys Leu Ile Cys Leu Leu Val His Thr
1               5                   10                  15
Ala Phe Arg Val Val Glu Gly Gln Gly Trp Gln Ala Phe Lys Asn Asp
            20                  25                  30
Ala Thr Glu Ile Ile Arg Glu Leu Gly Glu Tyr Pro Glu Pro Pro Pro
        35                  40                  45
```

```
          Glu Leu Glu Asn Asn Lys Thr Met Asn Arg Ala Glu Asn Gly Gly Arg
              50                      55                  60
          Pro Pro His His Pro Phe Glu Thr Lys Asp Val Ser Glu Tyr Ser Cys
          65                  70                  75                  80
     5    Arg Glu Leu His Phe Thr Arg Tyr Val Thr Asp Gly Pro Cys Arg Ser
                              85                  90                  95
          Ala Lys Pro Val Thr Glu Leu Val Cys Ser Gly Gln Cys Gly Pro Ala
                      100                 105                 110
          Arg Leu Leu Pro Asn Ala Ile Gly Arg Gly Lys Trp Trp Arg Pro Ser
     10       115                 120                 125
          Gly Pro Asp Phe Arg Cys Ile Pro Asp Arg Tyr Arg Ala Gln Arg Val
              130                 135                 140
          Gln Leu Leu Cys Pro Gly Gly Glu Ala Pro Arg Ala Arg Lys Val Arg
          145                 150                 155                 160
     15   Leu Val Ala Ser Cys Lys Cys Lys Arg Leu Thr Arg Phe His Asn Gln
                          165                 170                 175
          Ser Glu Leu Lys Asp Phe Gly Thr Glu Ala Ala Arg Pro Gln Lys Gly
                      180                 185                 190
          Arg Lys Pro Arg Pro Arg Ala Arg Ser Ala Lys Ala Asn Gln Ala Glu
     20       195                 200                 205
          Leu Glu Asn Ala Tyr
              210
```

```
          <210> 7
     25   <211> 2301
          <212> DNA
          <213> Homo sapien

          <400> 7
     30   agagcctgtg ctactggaag gtggcgtgcc ctcctctggc tggtaccatg cagctcccac    60
          tggccctgtg tctcgtctgc ctgctggtac acacagcctt ccgtgtagtg gagggccagg   120
          ggtggcaggc gttcaagaat gatgccacgg aaatcatccg cgagctcgga gagtaccccg   180
          agcctccacc ggagctggag aacaacaaga ccatgaaccg ggcggagaac ggagggcggc   240
          ctccccacca cccctttgag accaaagacg tgtccgagta cagctgccgc gagctgcact   300
     35   tcacccgcta cgtgaccgat gggccgtgcc gcagcgccaa gccggtcacc gagctggtgt   360
          gctccggcca gtgcggcccg gcgcgcctgc tgcccaacgc catcggccgc ggcaagtggt   420
          ggcgacctag tgggcccgac ttccgctgca tccccgaccg ctaccgcgcg cagcgcgtgc   480
          agctgctgtg tcccggtggt gaggcgccgc gcgcgcgcaa ggtgcgcctg gtggcctcgt   540
          gcaagtgcaa gcgcctcacc cgcttccaca accagtcgga gctcaaggac ttcgggaccg   600
     40   aggccgctcg gccgcagaag ggccggaagc gcggcccccg cgcccggagc gccaaagcca   660
          accaggccga gctggagaac gcctactaga gcccgcccgc gcccctcccc accggcgggc   720
          gccccggccc tgaaccgcg cccccacattt ctgtcctctg cgcgtggttt gattgtttat   780
          atttcattgt aaatgcctgc aacccagggc aggggctga gaccttccag gccctgagga   840
          atcccgggcg ccggcaaggc cccccctcagc ccgccagctg aggggtccca cggggcaggg   900
     45   gagggaattg agagtcacag acactgagcc acgcagcccc gcctctgggg ccgcctacct   960
          ttgctggtcc cacttcagag gaggcagaaa tggaagcatt ttcaccgccc tggggtttta  1020
          agggagcggt gtgggagtgg gaaagtccag ggactggtta agaaagttgg ataagattcc  1080
          cccttgcacc tcgctgccca tcagaaagcc tgaggcgtgc ccagagcaca agactggggg  1140
          caactgtaga tgtggtttct agtcctggct ctgccactaa cttgctgtgt aaccttgaac  1200
     50   tacacaattc tccttcggga cctcaatttc cactttgtaa aatgagggtg gaggtgggaa  1260
          taggatctcg aggagactat ggcatatga ttccaaggac tccagtgcct tttgaatggg  1320
          cagaggtgag agagagagag agaaagagag agaatgaatg cagttgcatt gattcagtgc  1380
          caaggtcact tccagaattc agagttgtga tgctctcttc tgacagccaa agatgaaaaa  1440
          caaacagaaa aaaaaaagta aagagtctat ttatggctga catatttacg gctgacaaac  1500
     55   tcctggaaga agctatgctg cttcccagcc tggcttcccc ggatgtttgg ctacctccac  1560
```

```
ccctccatct caaagaaata acatcatcca ttggggtaga aaaggagagg gtccgagggt   1620
ggtgggaggg atagaaatca catccgcccc aacttcccaa agagcagcat ccctcccccg   1680
acccatagcc atgtttttaaa gtcaccttcc gaagagaagt gaaaggttca aggacactgg   1740
ccttgcaggc ccgagggagc agccatcaca aactcacaga ccagcacatc ccttttgaga   1800
caccgccttc tgcccaccac tcacggacac atttctgcct agaaaacagc ttcttactgc   1860
tcttacatgt gatggcatat cttacactaa aagaatatta ttgggggaaa aactacaagt   1920
gctgtacata tgctgagaaa ctgcagagca taatagctgc cacccaaaaa tctttttgaa   1980
aatcatttcc agacaacctc ttactttctg tgtagttttt aattgttaaa aaaaaaagt    2040
tttaaacaga agcacatgac atatgaaagc ctgcaggact ggtcgttttt ttggcaattc   2100
ttccacgtgg gacttgtcca caagaatgaa agtagtggtt tttaaagagt taagttacat   2160
atttatttc tcacttaagt tatttatgca aaagtttttc ttgtagagaa tgacaatgtt    2220
aatattgctt tatgaattaa cagtctgttc ttccagagtc cagagacatt gttaataaag   2280
acaatgaatc atgaccgaaa g                                             2301
```

<210> 8
<211> 213
<212> PRT
<213> Homo sapien

<400> 8

```
Met Gln Leu Pro Leu Ala Leu Cys Leu Val Cys Leu Leu Val His Thr
1               5               10                  15
Ala Phe Arg Val Val Glu Gly Gln Gly Trp Gln Ala Phe Lys Asn Asp
            20              25                  30
Ala Thr Glu Ile Ile Arg Glu Leu Gly Glu Tyr Pro Glu Pro Pro
        35              40                  45
Glu Leu Glu Asn Asn Lys Thr Met Asn Arg Ala Glu Asn Gly Gly Arg
    50                  55                  60
Pro Pro His His Pro Phe Glu Thr Lys Asp Val Ser Glu Tyr Ser Cys
65                  70                  75                  80
Arg Glu Leu His Phe Thr Arg Tyr Val Thr Asp Gly Pro Cys Arg Ser
                85                  90                  95
Ala Lys Pro Val Thr Glu Leu Val Cys Ser Gly Gln Cys Gly Pro Ala
            100                 105                 110
Arg Leu Leu Pro Asn Ala Ile Gly Arg Gly Lys Trp Trp Arg Pro Ser
        115                 120                 125
Gly Pro Asp Phe Arg Cys Ile Pro Asp Arg Tyr Arg Ala Gln Arg Val
    130                 135                 140
Gln Leu Leu Cys Pro Gly Gly Glu Ala Pro Arg Ala Arg Lys Val Arg
145                 150                 155                 160
Leu Val Ala Ser Cys Lys Cys Lys Arg Leu Thr Arg Phe His Asn Gln
                165                 170                 175
Ser Glu Leu Lys Asp Phe Gly Thr Glu Ala Ala Arg Pro Gln Lys Gly
                180                 185                 190
Arg Lys Pro Arg Pro Arg Ala Arg Ser Ala Lys Ala Asn Gln Ala Glu
    195                 200                 205
Leu Glu Asn Ala Tyr
210
```

<210> 9
<211> 642
<212> DNA
<213> Cercopithecus pygerythrus

<400> 9

```
atgcagctcc cactggccct gtgtcttgtc tgcctgctgg tacacgcagc cttccgtgta      60
gtggagggcc aggggtggca ggccttcaag aatgatgcca cggaaatcat ccccgagctc     120
ggagagtacc ccgagcctcc accggagctg gagaacaaca agaccatgaa ccgggcggag     180
aatggagggc ggcctcccca ccaccccttt gagaccaaag acgtgtccga gtacagctgc     240
cgagagctgc acttcacccg ctacgtgacc gatgggccgt gccgcagcgc caagccagtc     300
accgagttgg tgtgctccgg ccagtgcggc ccggcacgcc tgctgcccaa cgccatcggc     360
cgcggcaagt ggtggcgccc gagtgggccc gacttccgct gcatccccga ccgctaccgc     420
gcgcagcgtg tgcagctgct gtgtcccggt ggtgccgcgc cgcgcgcgcg caaggtgcgc     480
ctggtggcct cgtgcaagtg caagcgcctc acccgcttcc acaaccagtc ggagctcaag     540
gacttcggtc ccgaggccgc tcggccgcag aagggccgga agccgcggcc ccgcgcccgg     600
ggggccaaag ccaatcaggc cgagctggag aacgcctact ag                       642
```

```
<210> 10
<211> 213
<212> PRT
<213> Cercopithecus pygerythrus

<400> 10
```

Met	Gln	Leu	Pro	Leu	Ala	Leu	Cys	Leu	Val	Cys	Leu	Leu	Val	His	Ala
1				5					10					15	
Ala	Phe	Arg	Val	Val	Glu	Gly	Gln	Gly	Trp	Gln	Ala	Phe	Lys	Asn	Asp
			20				25					30			
Ala	Thr	Glu	Ile	Ile	Pro	Glu	Leu	Gly	Glu	Tyr	Pro	Glu	Pro	Pro	Pro
		35				40					45				
Glu	Leu	Glu	Asn	Asn	Lys	Thr	Met	Asn	Arg	Ala	Glu	Asn	Gly	Gly	Arg
	50					55					60				
Pro	Pro	His	His	Pro	Phe	Glu	Thr	Lys	Asp	Val	Ser	Glu	Tyr	Ser	Cys
65					70					75					80
Arg	Glu	Leu	His	Phe	Thr	Arg	Tyr	Val	Thr	Asp	Gly	Pro	Cys	Arg	Ser
				95					90					95	
Ala	Lys	Pro	Val	Thr	Glu	Leu	Val	Cys	Ser	Gly	Gln	Cys	Gly	Pro	Ala
			100					105					110		
Arg	Leu	Leu	Pro	Asn	Ala	Ile	Gly	Arg	Gly	Lys	Trp	Trp	Arg	Pro	Ser
		115					120					125			
Gly	Pro	Asp	Phe	Arg	Cys	Ile	Pro	Asp	Arg	Tyr	Arg	Ala	Gln	Arg	Val
	130					135					140				
Gln	Leu	Leu	Cys	Pro	Gly	Gly	Ala	Ala	Pro	Arg	Ala	Arg	Lys	Val	Arg
145					150					155					160
Leu	Val	Ala	Ser	Cys	Lys	Cys	Lys	Arg	Leu	Thr	Arg	Phe	His	Asn	Gln
				165					170					175	
Ser	Glu	Leu	Lys	Asp	Phe	Gly	Pro	Glu	Ala	Ala	Arg	Pro	Gln	Lys	Gly
			180					185					190		
Arg	Lys	Pro	Arg	Pro	Arg	Ala	Arg	Gly	Ala	Lys	Ala	Asn	Gln	Ala	Glu
		195					200					205			
Leu	Glu	Asn	Ala	Tyr											
210															

```
<210> 11
<211> 638
<212> DNA
<213> Mus musculus

<400> 11
```

```
atgcagccct cactagcccc gtgcctcatc tgcctacttg tgcacgctgc cttctgtgct      60
gtggagggcc aggggtggca agccttcagg aatgatgcca cagaggtcat cccagggctt     120
```

```
ggagagtacc ccgagcctcc tcctgagaac aaccagacca tgaaccgggc ggagaatgga    180
ggcagacctc cccaccatcc ctatgacgcc aaaggtgtgt ccgagtacag ctgccgcgag    240
ctgcactaca cccgcttcct gacagacggc ccatgccgca gcgccaagcc ggtcaccgag    300
ttggtgtgct ccggccagtg cggccccgcg cggctgctgc caacgccat cgggcgcgtg    360
aagtggtggc gcccgaacgg accggatttc cgctgcatcc cggatcgcta ccgcgcgcag    420
cgggtgcagc tgctgtgccc cggggggcgcg gcgccgcgct cgcgcaaggt gcgtctggtg    480
gcctcgtgca agtgcaagcg cctcacccgc ttccacaacc agtcggagct caaggacttc    540
gggccggaga ccgcgcggcc gcagaagggt cgcaagccgc ggcccggcgc ccggggagcc    600
aaagccaacc aggcggagct ggagaacgcc tactagag                           638
```

```
<210> 12
<211> 211
<212> PRT
<213> Mus musculus

<400> 12
Met Gln Pro Ser Leu Ala Pro Cys Leu Ile Cys Leu Leu Val His Ala
1               5                  10                  15
Ala Phe Cys Ala Val Glu Gly Gln Gly Trp Gln Ala Phe Arg Asn Asp
            20                  25                  30
Ala Thr Glu Val Ile Pro Gly Leu Gly Glu Tyr Pro Glu Pro Pro
        35                  40                  45
Glu Asn Asn Gln Thr Met Asn Arg Ala Glu Asn Gly Gly Arg Pro Pro
    50                  55                  60
His His Pro Tyr Asp Ala Lys Asp Val Ser Glu Tyr Ser Cys Arg Glu
65                  70                  75                  80
Leu His Tyr Thr Arg Phe Leu Thr Asp Gly Pro Cys Arg Ser Ala Lys
                85                  90                  95
Pro Val Thr Glu Leu Val Cys Ser Gly Gln Cys Gly Pro Ala Arg Leu
            100                 105                 110
Leu Pro Asn Ala Ile Gly Arg Val Lys Trp Trp Arg Pro Asn Gly Pro
        115                 120                 125
Asp Phe Arg Cys Ile Pro Asp Arg Tyr Arg Ala Gln Arg Val Gln Leu
    130                 135                 140
Leu Cys Pro Gly Gly Ala Ala Pro Arg Ser Arg Lys Val Arg Leu Val
145                 150                 155                 160
Ala Ser Cys Lys Cys Lys Arg Leu Thr Arg Phe His Asn Gln Ser Glu
                165                 170                 175
Leu Lys Asp Phe Gly Pro Glu Thr Ala Arg Pro Gln Lys Gly Arg Lys
            180                 185                 190
Pro Arg Pro Gly Ala Arg Gly Ala Lys Ala Asn Gln Ala Glu Leu Glu
        195                 200                 205
Asn Ala Tyr
210
```

```
<210> 13
<211> 674
<212> DNA
<213> Rattus norvegicus

<400> 13
```

```
gaggaccgag tgcccttcct ccttctggca ccatgcagct ctcactagcc ccttgccttg    60
cctgcctgct tgtacatgca gccttcgttg ctgtggagag ccaggggtgg caagccttca    120
agaatgatgc cacagaaatc atcccgggac tcagagagta cccagagcct cctcaggaac    180
tagagaacaa ccagaccatg aaccgggccg agaacggagg cagacccccc caccatcctt    240
```

```
atgacaccaa agacgtgtcc gagtacagct gccgcgagct gcactacacc cgcttcgtga   300
ccgacggccc gtgccgcagt gccaagccgg tcaccgagtt ggtgtgctcg ggccagtgcg   360
gccccgcgcg gctgctgccc aacgccatcg ggcgcgtgaa gtggtggcgc ccgaacggac   420
ccgacttccg ctgcatcccg gatcgctacc gcgcgcagcg ggtgcagctg ctgtgccccg   480
gcggcgcggc gccgcgctcg cgcaaggtgc gtctggtggc ctcgtgcaag tgcaagcgcc   540
tcacccgctt ccacaaccag tcggagctca aggacttcgg acctgagacc gcgcggccgc   600
agaagggtcg caagccgcgg ccccgcgccc ggggagccaa agccaaccag gcggagctgg   660
agaacgccta ctag                                                    674
```

<210> 14
<211> 213
<212> PRT
<213> Rattus norvegicus

<400> 14

```
Met Gln Leu Ser Leu Ala Pro Cys Leu Ala Cys Leu Leu Val His Ala
*1               5                   10                  15
Ala Phe Val Ala Val Glu Ser Gln Gly Trp Gln Ala Phe Lys Asn Asp
            20                  25                  30
Ala Thr Glu Ile Ile Pro Gly Leu Arg Glu Tyr Pro Glu Pro Pro Gln
        35                  40                  45
Glu Leu Glu Asn Asn Gln Thr Met Asn Arg Ala Glu Asn Gly Gly Arg
    50                  55                  60
Pro Pro His His Pro Tyr Asp Thr Lys Asp Val Ser Glu Tyr Ser Cys
65                  70                  75                  80
Arg Glu Leu His Tyr Thr Arg Phe Val Thr Asp Gly Pro Cys Arg Ser
                85                  90                  95
Ala Lys Pro Val Thr Glu Leu Val Cys Ser Gly Gln Cys Gly Pro Ala
            100                 105                 110
Arg Leu Leu Pro Asn Ala Ile Gly Arg Val Lys Trp Trp Arg Pro Asn
        115                 120                 125
Gly Pro Asp Phe Arg Cys Ile Pro Asp Arg Tyr Arg Ala Gln Arg Val
        130                 135                 140
Gln Leu Leu Cys Pro Gly Gly Ala Ala Pro Arg Ser Arg Lys Val Arg
145                 150                 155                 160
Leu Val Ala Ser Cys Lys Cys Lys Arg Leu Thr Arg Phe His Asn Gln
                165                 170                 175
Ser Glu Leu Lys Asp Phe Gly Pro Glu Thr Ala Arg Pro Gln Lys Gly
                180                 185                 190
Arg Lys Pro Arg Pro Arg Ala Arg Gly Ala Lys Ala Asn Gln Ala Glu
        195                 200                 205
Leu Glu Asn Ala Tyr
        210
```

<210> 15
<211> 532
<212> DNA
<213> Bos torus

<400> 15

```
agaatgatgc cacagaaatc atccccgagc tgggcgagta ccccgagcct ctgccagagc    60
tgaacaacaa gaccatgaac cgggcggaga acgagggag acctccccac caccccttg    120
agaccaaaga cgcctccgag tacagctgcc gggagctgca cttcacccgc tacgtgaccg   180
atgggccgtg ccgcagcgcc aagccggtca ccgagctggt gtgctcgggc cagtgcggcc   240
cggcgcgcct gctgcccaac gccatcggcc gcggcaagtg gtggcgccca agcgggcccg   300
```

10

```
acttccgctg catccccgac cgctaccgcg cgcagcgggt gcagctgttg tgtcctggcg   360
gcgcggcgcc gcgcgcgcgc aaggtgcgcc tggtggcctc gtgcaagtgc aagcgcctca   420
ctcgcttcca caaccagtcc gagctcaagg acttcgggcc cgaggccgcg cggccgcaaa   480
cgggccggaa gctgcggccc cgcgcccggg gcaccaaagc cagccgggcc ga           532
```

```
<210> 16
<211> 176
<212> PRT
<213> Bos torus
```

```
<400> 16
```

```
Asn Asp Ala Thr Glu Ile Ile Pro Glu Leu Gly Glu Tyr Pro Glu Pro
1               5                   10                  15
Leu Pro Glu Leu Asn Asn Lys Thr Met Asn Arg Ala Glu Asn Gly Gly
        20                  25                  30
Arg Pro Pro His His Pro Phe Glu Thr Lys Asp Ala Ser Glu Tyr Ser
    35                  40                  45
Cys Arg Glu Leu His Phe Thr Arg Tyr Val Thr Asp Gly Pro Cys Arg
    50                  55                  60
Ser Ala Lys Pro Val Thr Glu Leu Val Cys Ser Gly Gln Cys Gly Pro
65              70                  75                  80
Ala Arg Leu Leu Pro Asn Ala Ile Gly Arg Gly Lys Trp Trp Arg Pro
                85                  90                  95
Ser Gly Pro Asp Phe Arg Cys Ile Pro Asp Arg Tyr Arg Ala Gln Arg
            100                 105                 110
Val Gln Leu Leu Cys Pro Gly Gly Ala Ala Pro Arg Ala Arg Lys Val
        115                 120                 125
Arg Leu Val Ala Ser Cys Lys Cys Lys Arg Leu Thr Arg Phe His Asn
    130                 135                 140
Gln Ser Glu Leu Lys Asp Phe Gly Pro Glu Ala Ala Arg Pro Gln Thr
145                 150                 155                 160
Gly Arg Lys Leu Arg Pro Arg Ala Arg Gly Thr Lys Ala Ser Arg Ala
                165                 170                 175
```

```
<210> 17
<211> 35828
<212> DNA
<213> Mus musculus
```

```
<220>
<221> misc_feature
<222> (1)...(35828)
<223> n = A,T,C or G
```

```
<400> 17
cgcgttttgg tgagcagcaa tattgcgctt cgatgagcct tggcgttgag attgatacct   60
ctgctgcaca aaaggcaatc gaccgagctg gaccagcgca ttcgtgacac cgtctccttc   120
gaacttattc gcaatggagt gtcattcatc aaggacngcc tgatcgcaaa tggtgctatc   180
cacgcagcgg caatcgaaaa ccctcagccg gtgaccaata tctacaacat cagccttggt   240
atcctgcgtg atgagccagc gcagaacaag gtaaccgtca gtgccgataa gttcaaagtt   300
aaacctggtg ttgataccaa cattgaaacg ttgatcgaaa acgcgctgaa aaacgctgct   360
gaatgtgcgg cgctggatgt cacaaagcaa atggcagcag acaagaaagc gatggatgaa   420
ctggcttcct atgtccgcac ggccatcatg atggaatgtt ccccggtgg tgttatctgg   480
cagcagtgcc gtcgatagta tgcaattgat aattattatc atttgcgggt cctttccggc   540
gatccgcctt gttacggggc ggcgacctcg cgggtttttcg ctatttatga aaatttttccg   600
```

```
    gtttaaggcg tttccgttct tcttcgtcat aacttaatgt ttttatttaa aataccctct    660
    gaaaagaaag gaaacgacag gtgctgaaag cgagcttttt ggcctctgtc gtttcctttc    720
    tctgtttttg tccgtggaat gaacaatgga agtcaacaaa aagcagagct tatcgatgat    780
    aagcggtcaa acatgagaat tcgcggccgc ataatacgac tcactatagg gatcgacgcc    840
  5 tactccccgc gcatgaagcg gaggagctgg actccgcatg cccagagacg cccccaacc      900
    cccaaagtgc ctgacctcag cctctaccag ctctggcttg gcttgggcg gggtcaaggc      960
    taccacgttc tcttaacagg tggctgggct gtctcttggc cgcgcgtcat gtgacagctg   1020
    cctagttctg cagtgaggtc accgtggaat gtctgccttc gttgccatgg caacgggatg   1080
    acgttacaat ctgggtgtgg agcttttcct gtccgtgtca ggaaatccaa ataccctaaa   1140
 10 ataccctaga agaggaagta gctgagccaa ggctttcctg gcttctccag ataaagtttg   1200
    acttagatgg aaaaaaacaa aatgataaag acccgagcca tctgaaaatt cctcctaatt   1260
    gcaccactag gaaatgtgta tattattgag ctcgtatgtg ttcttatttt aaaaagaaaa   1320
    ctttagtcat gttattaata agaatttctc agcagtggga gagaaccaat attaacacca   1380
    agataaaagt tggcatgatc cacattgcag gaagatccac gttgggtttt catgaatgtg   1440
 15 aagaccccat ttattaaagt cctaagctct gtttttgcac actaggaagc gatggccggg   1500
    atggctgagg ggctgtaagg atctttcaat gtcttacatg tgtgtttcct gtcctgcacc   1560
    taggacctgc tgcctagcct gcagcagagc cagaggggtt tcacatgatt agtctcagac   1620
    acttgggggc aggttgcatg tactgcatcg cttatttcca tacggagcac ctactatgtg   1680
    tcaaacacca tatggtgttc actcttcaga acggtggtgg tcatcatggt gcatttgctg   1740
 20 acggttggat tggtggtaga gagctgagat atatggacgc actcttcagc attctgtcaa   1800
    cgtggctgtg cattcttgct cctgagcaag tggctaaaca gactcacagg gtcagcctcc   1860
    agctcagtcg ctgcatagtc ttagggaacc tctcccagtc ctccctacct caactatcca   1920
    agaagccagg gggcttggcg gtctcaggag cctgcttgct gggggacagg ttgttgagtt   1980
    ttatctgcag taggttgcct aggcatagtg tcaggactga tggctgcctt ggagaacaca   2040
 25 tcctttgccc tctatgcaaa tctgaccttg acatgggggc gctgctcagc tgggaggatc   2100
    aactgcatac ctaaagccaa gcctaaagct tcttcgtcca cctgaaactc ctggaccaag   2160
    gggcttccgg cacatcctct caggccagtg agggagtctg tgtgagctgc acttccaat    2220
    ctcaggcgt gagaggcaga gggaggtggg ggcagagcct tgcagctctt tcctcccatc    2280
    tggacagcgc tctggctcag cagcccatat gagcacaggc acatccccac cccacccca    2340
 30 cctttcctgt cctgcagaat ttaggctctg ttcacggggg gggggggggg ggggcagtcc   2400
    tatcctctct taggtagaca ggactctgca ggagacactg ctttgtaaga tactgcagtt   2460
    taaatttgga tgttgtgagg ggaaagcgaa gggcctcttt gaccattcag tcaaggtacc   2520
    ttctaactcc catcgtattg gggggctact ctagtgctag acattgcaga gagcctcaga   2580
    actgtagtta ccagtgtggt aggattgatc cttcagggag cctgacatgt gacagttcca   2640
 35 ttcttcaccc agtcaccgaa catttattca gtacctaccc cgtaacaggc accgtagcag   2700
    gtactgaggg acggaccact caaagaactg acagaccgaa gccttggaat ataaacacca   2760
    aagcatcagg ctctgccaac agaacactct ttaacactca ggccctttaa cactcaggac   2820
    ccccacccc accccaagca gttggcactg ctatccacat tttacagaga ggaaaaacta   2880
    ggcacaggac gatataagtg gcttgcttaa gcttgtctgc atggtaaatg gcagggctgg   2940
 40 attgagaccc agacattcca actctagggt ctatttttct tttttctcgt tgttcgaatc   3000
    tgggtcttac tgggtaaact caggctagcc tcacactcat atccttctcc catggcttac   3060
    gagtgctagg attccaggtg tgtgctacca tgtctgactc cctgtagctt gtctatacca   3120
    tcctcacaac ataggaattg tgatagcagc acacacaccg gaaggagctg gggaaatccc   3180
    acagagggct ccgcaggatg acaggcgaat gcctacacag aaggtgggga agggaagcag   3240
 45 agggaacagc atgggcgtgg gaccacaagt ctattgggg aagctgccgg taaccgtata    3300
    tggctggggt gaggggagag gtcatgagat gaggcaggaa gagccacagc aggcagcggg   3360
    tacgggctcc ttattgccaa gaggctcgga tcttcctcct cttcctcctt ccggggctgc   3420
    ctgttcattt tccaccactg cctcccatcc aggtctgtgg ctcaggacat cacccagctg   3480
    cagaaactgg gcatcaccca cgtcctgaat gctgccgagg caggtcctt catgcacgtc    3540
 50 aacaccagtg ctagcttcta cgaggattct ggcatcacct acttgggcat caaggccaat   3600
    gatacgcagg agttcaacct cagtgcttac tttgaaaggg ccacagattt cattgaccag   3660
    gcgctggccc ataaaaatgg taaggaacgt acattccggc acccatggag cgtaagccct   3720
    ctgggacctg cttcctccaa agaggccccc acttgaaaaa ggttccagaa agatcccaaa   3780
    atatgccacc aactagggat taagtgtcct acatgtgagc cgatgggggc cactgcatat   3840
 55 agtctgtgcc atagacatga caatggataa taatatttca gacagagagc aggagttagg   3900
```

```
 tagctgtgct cctttccctt taattgagtg tgcccatttt tttattcatg tatgtgtata   3960
 catgtgtgtg cacacatgcc ataggttgat actgaacacc gtcttcaatc gttccccacc   4020
 ccaccttatt ttttgaggca gggtctcttc cctgatcctg gggctcattg gtttatctag   4080
 gctgctggcc agtgagctct ggagttctgc ttttctctac ctccctagcc ctgggactgc   4140
 aggggcatgt gctgggccag gcttttatgt cgcgttgggg atctgaactt aggtccctag   4200
 gcctgagcac cgtaaagact ctgccacatc cccagcctgt ttgagcaagt gaaccattcc   4260
 ccagaattcc cccagtgggg ctttcctacc cttttattgg ctaggcattc atgagtggtc   4320
 acctcgccag aggaatgagt ggccacgact ggctcagggt cagcagccta gagatactgg   4380
 gttaagtctt cctgccgctc gctccctgca gccgcagaca gaaagtagga ctgaatgaga   4440
 gctggctagt ggtcagacag gacagaaggc tgagagggtc acagggcaga tgtcagcaga   4500
 gcagacaggt tctccctctg tgggggaggg gtggcccact gcaggtgtaa ttggccttct   4560
 ttgtgctcca tagaggcttc ctgggtacac agcagcttcc ctgtcctggt gattcccaaa   4620
 gagaactccc taccactgga cttacagaag ttctattgac tggtgtaacg gttcaacagc   4680
 tttggctctt ggtggacggt gcatactgct gtatcagctc aagagctcat tcacgaatga   4740
 acacacacac acacacacac acacacacac acacaagcta attttgatat gccttaacta   4800
 gctcagtgac tgggcatttc tgaacatccc tgaagttagc acacatttcc ctctggtgtt   4860
 cctggcttaa caccttctaa atctatattt tatctttgct gccctgttac cttctgagaa   4920
 gcccctaggg ccacttccct tcgcacctac attgctggat ggtttctctc ctgcagctct   4980
 taaatctgat ccctctgcct ctgagccatg gaacagccc aataactgag ttagacataa   5040
 aaacgtctct agccaaaact tcagctaaat ttagacaata aatcttactg gttgtggaat   5100
 ccttaagatt cttcatgacc tccttcacat ggcacgagta tgaagcttta ttacaattgt   5160
 ttattgatca aactaactca taaaaagcca gttgtctttc acctgctcaa ggaaggaaca   5220
 aaattcatcc ttaactgatc tgtgcacctt gcacaatcca tacgaatatc ttaagagtac   5280
 taagattttg gttgtgagag tcacatgtta cagaatgtac agctttgaca aggtgcatcc   5340
 ttgggatgcc gaagtgacct gctgttccag cccctacct tctgaggctg ttttggaagc   5400
 aatgctctgg aagcaacttt aggaggtagg atgctggaac agcgggtcac ttcagcatcc   5460
 cgatgacgaa tcccgtcaaa gctgtacatt ctgtaacaga ctgggaaagc tgcagacttt   5520
 aaggccaggg ccctatggtc cctcttaatc cctgtcacac ccaacccgag cccttctcct   5580
 ccagccgttc tgtgcttctc actctggata gatggagaac acggccttgc tagttaaagg   5640
 agtgaggctt cacccttctc acatggcagt ggttggtcat cctcattcag ggaactctgg   5700
 ggcattctgc ctttacttcc tctttttgga ctacaggaa tatatgctga cttgttttga   5760
 ccttgtgtat ggggagactg gatctttggt ctggaatgtt tcctgctagt ttttccccat   5820
 cctttggcaa accctatcta tatcttacca ctaggcatag tggccctcgt tctggagcct   5880
 gccttcaggc tggttctcgg ggaccatgtc cctggtttct ccccagcata tggtgttcac   5940
 agtgttcact gcgggtggtt gctgaacaaa gcggggattg catcccagag ctccggtgcc   6000
 ttgtgggtac actgctaaga taaaatggat actggcctct ctctgaccac ttgcagagct   6060
 ctggtgcctt gtgggtacac tgctaagata aaatggatac tggcctctct ctatccactt   6120
 gcaggactct agggaacagg aatccattac tgagaaaacc aggggctagg agcagggagg   6180
 tagctgggca gctgaagtgc ttggcgacta accaatgaat accagagttt ggatctctag   6240
 aatactctta aaatctgggt gggcagagtg gcctgcctgt aatcccagaa ctcgggaggc   6300
 ggagacaggg aatcatcaga gcaaactggc taaccagaat agcaaaacac tgagctctgg   6360
 gctctgtgag agatcctgcc ttaacatata agagagagaa taaacattg aagaagacag   6420
 tagatgccaa ttttaagccc ccacatgcac atggacaagt gtgcgtttga acacacatat   6480
 gcactcatgt gaaccaggca tgcacactcg ggcttatcac acacataatt tgaaagagag   6540
 agtgagagag gagagtgcac attagagttc acaggaaagt gtgagtgagc acaccatgc   6600
 acacagacat gtgtgccagg gagtaggaaa ggagcctggg tttgtgtata agagggagcc   6660
 atcatgtgtt tctaaggagg gcgtgtgaag gaggcgttgt gtgggctggg actggagcat   6720
 ggttgtaact gagcatgctc cctgtgggaa acaggagggt ggccaccctg cagagggtcc   6780
 cactgtccag cgggatcagt aaaagcccct gctgagaact ttaggtaata gccagagaga   6840
 gaaaggtagg aaagtggggg gactcccatc tctgatgtag gaggatctgg gcaagtagag   6900
 gtgcgtttga ggtagaaaga ggggtgcaga ggagatgctc ttaattctgg gtcagcagtt   6960
 tctttccaaa taatgcctgt gaggaggtgt aggtggtggc cattcactca ctcagcagag   7020
 ggatgatgat gcccggtgga tgctggaaat ggccgagcat caaccctggc tctggaagaa   7080
 ctccatcttt cagaaggaga gtggatctgt gtatggccag cggggtcaca ggtgcttggg   7140
 gccctggg gactcctagc actgggtgat gtttatcgag tgctcttgtg tgccaggcac   7200
```

```
        tggcctggggg ctttgtttct gtctctgttt tgtttcgttt tttgagacag actcttgcta    7260
        tgtatccgtg tcaatcttgg aatctcactg catagcccag gctgcggaga gaggggaggg    7320
        caataggcct tgtaagcaag ccacacttca gagactagac tccaccctgc gaatgatgac    7380
        aggtcagagc tgagttccgg aagatttttt ttccagctgc caggtggagt gtggagtggc    7440
   5    agctagcggc aagggtagag ggcgagctcc ctgtgcagga gaaatgcaag caagagatgg    7500
        caagccagtg agttaagcat tctgtgtggg gagcaggtgg atgaagagag aggctgggct    7560
        ttcgcctctg ggggggggggt gaggggtggg gatgaggtga gaggagggca gctccctgca    7620
        gtgtgatgag attttttcctg acagtgacct ttggcctctc cctcccccac ttcccttctt    7680
        tcctttcttc ccaccattgc tttccttgtc cttgagaaat tctgagtttc cacttcactg    7740
  10    gtgatgcaga cggaaacaga agccgtgtgt gtgtgtgtgt gtgtgtgtgt gtgtgtgtgt    7800
        gtgtgtgtgt ttgtgtgtat gtgtgtgtgt gtgtttgtgt gtatgtgtgt cagtgggaat    7860
        ggctcatagt ctgcaggaag gtgggcagga aggaataagc tgtaggctga ggcagtgtgg    7920
        gatgcaggga gagaggagag gagggatacc agagaaggaa attaagggag ctacaagagg    7980
        gcattgttgg ggtgtgtgtg tgtgtgtgtt gtttatattt gtattggaaa tacattcttt    8040
  15    taaaaaatac ttatccattt atttattttt atgtgcacgt gtgtgtgcct gcatgagttc    8100
        atgtgtgcca cgtgtgtgcg ggaacccttg gaggccacaa ggggcatct gatcccctgg     8160
        aactggagtt ggaggaggtt gtgagtcccc tgacatgttt gctgggaact gaaccccggt    8220
        cctatgcaag agcaggaagt gcagttatct gctgagccat ctctccagtc ctgaaatcca    8280
        ttctcttaaa atacacgtgg cagagacatg atgggattta cgtatggatt taatgtggcg    8340
  20    gtcattaagt tccggcacag gcaagcacct gtaaagccat caccacaacc gcaacagtga    8400
        atgtgaccat cacccccatg ttcttcatgt cccctgtccc ctccatcctc cattctcaag    8460
        cacctcttgc tctgcctctg tcgctggaga acagtgtgca tctgcacact cttatgtcag    8520
        tgaagtcaca cagcctgcac cccttcctgg tctgagtatt tgggttctga ctctgctatc    8580
        acacactact gtactgcatt ctctcgctct cttttttaa acatattttt atttgtttgt    8640
  25    gtgtatgcac atgtgccaca tgtgtacaga tactatggag gccagaagag gccatggccg    8700
        tccctggagc tggagttaca ggcagcgtgt gagctgcctg gtgtgggtgc tgggaaccaa    8760
        acttgaatct aaagcaagca cttttaactg ctgaggcagc tctcagtacc cttcttcatt    8820
        tctccgcctg ggttccattg tatggacaca tgtagctaga atatcttgct tatctaatta    8880
        tgtacattgt tttgtgctaa gagagagtaa tgctctatag cctgagctgg cctcaacctt    8940
  30    gccatcctcc tgcctcagcc tcctcctcct gagtgctagg atgacaggcg agtggtaact    9000
        tacatggttt catgttttgt tcaagactga aggataacat tcatacagag aaggtctggg    9060
        tcacaaagtg tgcagttcac tgaatggcac aacccgtgat caagaaacaa aactcaggggg    9120
        ctggagagat ggcactgact gctcttccag aggtccggag ttcaattccc agcaaccaca    9180
        tggtggctca cagccatcta taacgagatc tgacgccctc ttctggtgtg tctgaagaca    9240
  35    gctacagtgt actcacataa aataaataaa tctttaaaac acacacacac acacaattac    9300
        cacccccagaa agcccactcc atgttccctc ccacgtctct gcctacagta ctcccaggtt    9360
        accactgttc aggcttctaa caacctggtt tacttgggcc tcttttctgc tctgtggagc    9420
        cacacatttg tgtgcctcat acacgttctt tctagtaagt tgcatattac tctgcgtttt    9480
        tacatgtatt tatttattgt agttgtgtgt gcgtgtgggc ccatgcatgg cacagtgtgt    9540
  40    ggggatgtca gagtattgtg aacaggggac agttcttttc ttcaatcatg tgggttccag    9600
        aggttgaact caggtcatca tgtgtggcag caaatgcctt tacccactga gacatctcca    9660
        tattcttttt ttttcccctg aggtgggggc ttgttccata gcccaaactg gctttgcact    9720
        tgcagttcaa agtgactccc tgtctccacc tcttagagta ttggaattac gatgtgtact    9780
        accacacctg actggatcat taattctttg atggggcgg ggaagcgcac atgctgcagg     9840
  45    tgaagggatg actggactgg acatgagcgt ggaagccaga gaacagcttc agtctaatgc    9900
        tctcccaact gagctatttc ggtttgccag agaacaactt acagaaagtt ctcagtgcca    9960
        tgtggattcg gggttggagt tcaactcatc agcttgacat tggctcctct acccactgag   10020
        ccttctcact actctctacc tagatcatta attctttttt aaaaagactt attaggggc    10080
        tggagagatg gctcagccgt taagagcacc gaatgcccтt ccagaggtcc tgagttcaat   10140
  50    tcccagcatg ccattgctgg gcagtagggg cgcaggtgt tcaacgtgag tagctgttgc     10200
        cagttttccg cggtggagaa cctcttgaca ccctgctgtc cctggtcatt ctgggtgggt   10260
        gcatggtgat atgcttgttg tatggaagac tttgactgtt acagtgaagt tgggcttcca   10320
        cagttaccac gtctcccctg tttcttgcag gccgggtgct tgtccattgc cgcgagggct   10380
        acagccgctc cccaacgcta gttatcgcct acctcatgat gcggcagaag atggacgtca   10440
  55    agtctgctct gagtactgtg aggcagaatc gtgagatcgg ccccaacgat ggcttcctgg   10500
```

```
     cccaactctg ccagctcaat gacagactag ccaaggaggg caaggtgaaa ctctagggtg    10560
     cccacagcct cttttgcaga ggtctgactg ggagggccct ggcagccatg tttaggaaac    10620
     acagtatacc cactccctgc accaccagac acgtgcccac atctgtccca ctctggtcct    10680
     cgggggccac tccaccctta gggagcacat gaagaagctc cctaagaagt tctgctcctt    10740
   5 agccatcctt tcctgtaatt tatgtctctc cctgaggtga ggttcaggtt tatgtccctg    10800
     tctgtggcat agatacatct cagtgaccca gggtgggagg gctatcaggg tgcatggccc    10860
     gggacacggg cactcttcat gacccctccc ccacctggt tcttcctgtg tggtccagaa    10920
     ccacgagcct ggtaaaggaa ctatgcaaac acaggccctg acctccccat gtctgttcct    10980
     ggtcctcaca gcccgacacg ccctgctgag gcagacgaat gacattaagt tctgaagcag    11040
  10 agtggagata gattagtgac tagatttcca aaaagaagga aaaaaaaggc tgcattttaa    11100
     aattatttcc ttagaattaa agatactaca taggggccct gggtaagca aatccatttt    11160
     tcccagaggc tatcttgatt ctttggaatg tttaaagtgt gccttgccag agagcttacg    11220
     atctatatct gctgcttcag agccttccct gaggatggct ctgttccttt gcttgttaga    11280
     agagcgatgc cttgggcagg gtttcccccct tttcagaata cagggtgtaa agtccagcct    11340
  15 attacaaaca aacaaacaaa caaacaaaca aaggacctcc atttggagaa ttgcaaggat    11400
     tttatcctga attatagtgt tggtgagttc aagtcatcac gccaagtgct tgccatcctg    11460
     gttgctattc taagaataat taggaggagg aacctagcca attgcagctc atgtccgtgg    11520
     gtgtgtgcac gggtgcatat gttggaaggg gtgcctgtcc ccttggggac agaaggaaaa    11580
     tgaaaggccc ctctgctcac cctggccatt tacgggaggc tctgctggtt ccacggtgtc    11640
  20 tgtgcaggat cctgaaactg actgctgga cagaaacgag acttggcggc accatgagaa    11700
     tggagagaga gagagcaaag aaagaaacag cctttaaaag aactttctaa gggtggtttt    11760
     tgaacctcgc tggaccttgt atgtgtgcac atttgccaga gattgaacat aatcctcttg    11820
     ggacttcacg ttctcattat ttgtatgtct ccggggtcac gcagagccgt cagccaccac    11880
     cccagcaccc ggcacatagg cgtctcataa aagcccattt tatgagaacc agagctgttt    11940
  25 gagtaccccg tgtatagaga gagttgttgt cgtggggcac ccggatccca gcagcctggt    12000
     tgcctgcctg taggatgtct tacaggagtt tgcagagaaa ccttccttgg agggaaagaa    12060
     atatcaggga tttttgttga atatttcaaa ttcagcttta agtgtaagac tcagcagtgt    12120
     tcatggttaa ggtaaggaac atgccttttc cagagctgct gcaagaggca ggagaagcag    12180
     acctgtctta ggatgtcact cccagggtaa agacctctga tcacagcagg agcagagctg    12240
  30 tgcagcctgg atggtcattg tcccctattc tgtgtgacca cagcaaccct ggtcacatag    12300
     ggctggtcat cctttttttt ttttttttttt ttttttttttg gcccagaatg aagtgaccat    12360
     agccaagttg tgtacctcag tctttagttt ccaagcggct ctcttgctca atacaatgtg    12420
     catttcaaaa taacactgta gagttgacag aactggttca tgtgttatga gagaggaaaa    12480
     gagaggaaag aacaaaacaa aacaaaacac cacaaaccaa aaacatctgg gctagccagg    12540
  35 catgattgca atgtctacag gcccagttca tgagaggcag agacaggaag accgccgaaa    12600
     ggtcaaggat agcatggtct acgtatcgag actccagcca gggctacggt cccaagatcc    12660
     taggttttgg attttgggct ttggttttttg agacagggtt tctctgtgta gccctggctg    12720
     tcctggaact cgctctgtag accaggctgg cctcaaactt agagatctgc ctgactctgc    12780
     ctttgagggc tgggacgaat gccaccactg cccaactaag attccattaa aaaaaaaaaa    12840
  40 agttcaagat aattaagagt tgccagctcg ttaaagctaa gtagaagcag tctcaggcct    12900
     gctgcttgag gctgttcttg gcttggacct gaaatctgcc cccaacagtg tccaagtgca    12960
     catgactttg agccatctcc agagaaggaa gtgaaaattg tggctcccca gtcgattggg    13020
     acacagtctc tctttgtcta ggtaacacat ggtgacacat agcattgaac tctccactct    13080
     gagggtgggt ttccctcccc ctgcctcttc tgggttggtc accccatagg acagccacag    13140
  45 gacagtcact agcacctact ggaaacctct ttgtgggaac atgaagaaag agcctttggg    13200
     agattcctgg ctttccatta gggctgaaag tacaacggtt cttggttggc tttgcctcgt    13260
     gtttataaaa ctagctacta ttcttcaggt aaaataccga tgttgtggaa aagccaaccc    13320
     cgtggctgcc cgtgagtagg gggtggggtt gggaatcctg gatagtgttc tatccatgga    13380
     aagtggtgga ataggaatta agggtgttcc ccccccccc aacctcttcc tcagacccag    13440
  50 ccactttcta tgacttataa acatccaggt aaaaattaca aacataaaaa tggtttctct    13500
     tctcaatctt ctaaagtctg cctgcctttt ccaggggtag gtctgtttct ttgctgttct    13560
     attgtcttga gagcacagac taacacttac caaatgaggg aactcttggc ccatactaag    13620
     gctcttctgg gctccagcac tcttaagtta ttttaagaat tctcacttgg cctttagcac    13680
     acccgccacc cccaagtggg tgtggataat gccatggcca gcaggggca ctgttgaggc    13740
  55 gggtgccttt ccaccttaag ttgcttatag tatttaagat gctaaatgtt ttaatcaaga    13800
```

```
        gaagcactga tcttataata cgaggataag agattttctc acaggaaatt gtctttttca    13860
        taattctttt acaggctttg tcctgatcgt agcatagaga gaatagctgg atatttaact    13920
        tgtattccat tttcctctgc cagcgttagg ttaactccgt aaaaagtgat tcagtggacc    13980
        gaagaggctc agagggcagg ggatggtggg gtgaggcaga gcactgtcac ctgccaggca    14040
  5     tgggaggtcc tgccatccgg gaggaaaagg aaagtttagc ctctagtcta ccaccagtgt    14100
        taacgcactc taaagttgta accaaaataa atgtcttaca ttacaaagac gtctgttttg    14160
        tgtttccttt tgtgtgtttg ggctttttat gtgtgcttta taactgctgt ggtggtgctg    14220
        ttgttagttt tgaggtagga tctcaggctg gccttgaact tctgatcgcc tgcccctgcc    14280
        cctgcccctg ccctgtccc tgcctccaag tgctaggact aaaagcacat gccaccacac       14340
 10     cagtacagca tttttctaac atttaaaaat aatcacctag gggctggaga gagggttcca    14400
        gctaagagtg cacactgctc ttgggtagga cctgagttta gttcccagaa cctatactgg    14460
        gtggctccag gtccagagga tccaggacct ctggcctcca tgggcatctg ctcttagcac    14520
        atacccacat acagatacac acataaaaat aaaatgaagc ctttaaaaac ctcctaaaac    14580
        ctagcccttg gaggtacgac tctggaaagc tggcatactg tgtaagtcca tctcatggtg    14640
 15     ttctggctaa cgtaagactt acagagacag aaaagaactc agggtgtgct gggggttggg    14700
        atggaggaag agggatgagt aggggggagca cggggaactt gggcagtgaa aattctttgc    14760
        aggacactag aggaggataa ataccagtca ttgcacccac tactggacaa ctccagggaa    14820
        ttatgctggg tgaaaagaga aggcccagg tattggctgc attggctgca tttgcgtaac     14880
        attttttaa attgaaaaga aaaagatgta aatcaaggtt agatgagtgg ttgctgtgag     14940
 20     ctgagagctg gggtgagtga gacatgtgga caactccatc aaaaagcgac agaaagaacg    15000
        ggctgtggtg acagctacct ctaatctcca cctccgggag gtgatcaagg ttagccctca    15060
        gctagcctgt ggtgcatgag accctgtttc aaaaacttta ataaagaaat aatgaaaaaa    15120
        gacatcaggg cagatccttg gggccaaagg cggacaggcg agtctcgtgg taaggtcgtg    15180
        tagaagcgga tgcatgagca cgtgccgcag gcatcatgag agagccctag gtaagtaagg    15240
 25     atggatgtga gtgtgtcggc gtcggcgcac tgcacgtcct ggctgtggtg ctggactggc    15300
        atctttggtg agctgtggag gggaaatggg tagggagatc ataaaatccc tccgaattat    15360
        ttcaagaact gtctattaca attatctcaa aatattaaaa aaaagaaga attaaaaaac     15420
        aaaaaaccta tccaggtgtg gtggtgtgca cctatagcca cgggcacttg gaaagctgga    15480
        gcaagaggat ggcgagtttg aaggtatctg gggctgtaca gcaagaccgt cgtccccaaa    15540
 30     ccaaaccaaa cagcaaaccc attatgtcac acaagagtgt ttatagtgag cggcctcgct    15600
        gagagcatgg ggtgggggtg ggggtggggg acagaaatat ctaaactgca gtcaataggg    15660
        atccactgag accctggggc ttgactgcag cttaaccttg ggaaatgata agggtttttgt   15720
        gttgagtaaa agcatcgatt actgacttaa cctcaaatga agaaaagaa aaaagaaaa       15780
        caacaaaagc caaaccaagg ggctggtgag atggctcagt gggtaagagc acccgactgc    15840
 35     tcttccgaag gtccagagtt caaatcccag caaccacatg gtggctcaca accatctgta    15900
        acgagatatg atgccctctt ctggtgtgtc tgaagacagc tacagtgtac ttacatataa    15960
        taaataaatc ttaaaaaaaa aaaaaaaaaa aaaagccaaa ccgagcaaac caggccccca    16020
        aacagaaggc aggcacgacg gcaggcacca cgagccatcc tgtgaaaagg cagggctacc    16080
        catgggccga ggagggtcca gagagatagg ctggtaagct cagtttctct gtataccctt    16140
 40     tttcttgttg acactacttc aattacagat aaaataacaa ataaacaaaa tctagagcct    16200
        ggccactctc tgctcgcttg attttccctg ttacgtccag caggtggcgg aagtgttcca    16260
        aggacagatc gcatcattaa ggtggccagc ataatctccc atcagcaggt ggtgctgtga    16320
        gaaccattat ggtgctcaca gaatcccggg cccaggagct gccctctccc aagtctggag    16380
        caataggaaa gctttctggc ccagacaggg ttaacagtcc acattccaga gcaggggaaa    16440
 45     aggagactgg aggtcacaga caaaagggcc agcttctaac aacttcacag ctctggtagg    16500
        agagatagat caccccccaac aatggccaca gctggttttg tctgccccga aggaaactga    16560
        cttaggaagc aggtatcaga gtccccttcc tgaggggact tctgtctgcc ttgtaaagct    16620
        gtcagagcag ctgcattgat gtgtgggtga cagaagatga aaaggaggac ccaggcagat    16680
        cgccacagat ggaccggcca cttacaagtc gaggcaggtg gcagagcctt gcagaagctc    16740
 50     tgcaggtgga cgacactgat tcattaccca gttagcatac cacagcgggc taggcggacc    16800
        acagcctcct tcccagtctt cctccagggc tggggagtcc tccaaccttc tgtctcagtg    16860
        cagcttccgc cagcccctcc tccttttgca cctcaggtgt gaaccctccc tcctctcctt    16920
        ctccctgtgg catggccctc ctgctactgc aggctgagca ttggatttct ttgtgcttag    16980
        atagacctga gatggctttc tgatttatat atatatatcc atcccttgga tcttacatct    17040
 55     aggacccaga gctgtttgtg ataccataag aggctgggga gatgatatgg taagagtgct    17100
```

```
    tgctgtacaa gcatgaagac atgagttcga atccccagca accatgtgga aaaataacct  17160
    tctaacctca gagttgaggg gaaaggcagg tggattctgg gggcttactg gccagctagc  17220
    cagcctaacc taaatgtctc agtcagagat cctgtctcag ggaataactt gggagaatga  17280
    ctgagaaaga cacctcctca ggtctcccat gcacccacac agacacacgg gggggggggta  17340
 5  atgtaataag ctaagaaata atgagggaaa tgatttttgt ctaagaaatg aaattctgtg  17400
    ttggccgcaa gaagcctggc cagggaagga actgcctttg gcacaccagc ctataagtca  17460
    ccatgagttc cctggctaag aatcacatgt aatggagccc aggtccctct tgcctggtgg  17520
    ttgcctctcc cactggtttt gaagagaaat tcaagagaga tctccttggt cagaattgta  17580
    ggtgctgagc aatgtggagc tggggtcaat gggattcctt taaaggcatc cttcccaggg  17640
10  ctgggtcata cttcaatagt agggtgcttg cacagcaagc gtgagaccct aggttagagt  17700
    ccccagaatc tgcccccaac cccccaaaaa ggcatccttc tgcctctggg tgggtggggg  17760
    gagcaaacac ctttaactaa gaccattagc tggcaggggt aacaaatgac cttggctaga  17820
    ggaattggt caagctggat tccgccttct gtagaagccc cacttgtttc ctttgttaag  17880
    ctggcccaca gtttgttttg agaatgcctg aggggcccag ggagccagac aattaaaagc  17940
15  caagctcatt ttgatatctg aaaaccacag cctgactgcc ctgcccgtgg gaggtactgg  18000
    gagagctggc tgtgtccctg cctcaccaac gcccccccccc ccaacacaca ctcctcgggt  18060
    cacctgggag gtgccagcag caatttggaa gtttactgag cttgagaagt cttgggaggg  18120
    ctgacgctaa gcacacccct tctccacccc cccccacccc accccgtga ggaggagggt  18180
    gaggaaacat gggaccagcc ctgctccagc ccgtccttat tggctggcat gaggcagagg  18240
20  gggctttaaa aaggcaaccg tatctaggct ggacactgga gcctgtgcta ccgagtgccc  18300
    tcctccacct ggcagcatgc agccctcact agcccgtgc ctcatctgcc tacttgtgca  18360
    cgctgccttc tgtgctgtgg agggccaggg gtggcaagcc ttcaggaatg atgccacaga  18420
    ggtcatccca gggcttggag agtaccccga gcctcctcct gagaacaacc agaccatgaa  13480
    ccgggcggag aatggaggca gacctcccca ccatccctat gacgccaaag gtacgggatg  18540
25  aagaagcaca ttagtggggg gggggggtcct gggaggtgac tggggtggtt ttagcatctt  18600
    cttcagaggt ttgtgtgggt ggctagcctc tgctacatca gggcagggac acatttgcct  18660
    ggaagaatac tagcacagca ttagaacctg gagggcagca ttggggggct ggtagagagc  18720
    acccaaggca gggtggaggc tgaggtcagc cgaagctggc attaacacgg gcatgggctt  18780
    gtatgatggt ccagagaatc tcctcctaag gatgaggaca caggtcagat ctagctgctg  18840
30  accagtgggg aagtgatatg gtgaggctgg atgccagatg ccatccatgg ctgtactata  18900
    tcccacatga ccaccacatg aggtaaagaa ggccccagct tgaagatgga gaaaccgaga  18960
    ggctcctgag ataaagtcac ctgggagtaa gaagagctga gactggaagc tggtttgatc  19020
    cagatgcaag gcaaccctag attgggtttg ggtgggaacc tgaagccagg aggaatccct  19080
    ttagttcccc cttgcccagg gtctgctcaa tgagcccaga gggttagcat taaaagaaca  19140
35  gggtttgtag gtggcatgtg acatgagggg cagctgagtg aaatgtcccc tgtatgagca  19200
    caggtggcac cacttgccct gagcttgcac cctgacccca gctttgcctc attcctgagg  19260
    acagcagaaa ctgtggaggc agagccagca cagagagatg cctggggtgg gggtgggggt  19320
    atcacgcacg gaactagcag caatgaatgg ggtggggtgg cagctggagg gacactccag  19380
    agaaatgacc ttgctggtca ccatttgtgt gggaggagag ctcattttcc agcttgccac  19440
40  cacatgctgt ccctcctgtc tcctagccag taagggatgt ggaggaaagg gccaccccaa  19500
    aggagcatgc aatgcagtca cgtttttgca gaggaagtgc ttgacctaag ggcactattc  19560
    ttggaaagcc ccaaaactag tccttccctg ggcaaacagg cctcccccac ataccacctc  19620
    tgcaggggtg agtaaattaa gccagccaca gaaggtggc aaggcctaca cctccccccct  19680
    gttgtgcccc ccccccccccc gtgaaggtgc atcctggcct ctgcccctct ggctttggta  19740
45  ctgggatttt tttttttcctt ttatgtcata ttgatcctga caccatggaa cttttggagg  19800
    tagacaggac ccacacatgg attagttaaa agcctcccat ccatctaagc tcatggtagg  19860
    agatagagca tgtccaagag aggagggcag gcatcagacc tagaagatat ggctgggcat  19920
    ccaacccaat ctccttcccc ggagaacaga ctctaagtca gatccagcca cccttgagta  19980
    accagctcaa ggtacacaga acaagagagt ctggtataca gcaggtgcta aacaaatgct  20040
50  tgtggtagca aaagctatag gtttttgggtc agaactccga cccaagtcgc gagtgaagag  20100
    cgaaaggccc tctactcgcc accgccccgc ccccacctgg ggtcctataa cagatcactt  20160
    tcaccttgc gggagccaga gagccctggc atcctaggta gccccccccg cccccccccc  20220
    gcaagcagcc cagccctgcc tttggggcaa gttctttttct cagcctggac ctgtgataat  20280
    gaggggggttg gacgcgccgc ctttggtcgc tttcaagtct aatgaattct tatccctacc  20340
55  acctgccctt ctaccccgct cctccacagc agctgtcctg atttattacc ttcaattaac  20400
```

```
      ctccactcct ttctccatct cctgggatac cgcccctgtc ccagtggctg gtaaaggagc   20460
      ttaggaagga ccagagccag gtgtggctag aggctaccag gcagggctgg ggatgaggag   20520
      ctaaactgga agagtgtttg gttagtaggc acaaagcctt gggtgggatc cctagtaccg   20580
      gagaagtgga gatgggcgct gagaagttca agaccatcca tccttaacta cacagccagt   20640
    5 ttgaggccag cctgggctac ataaaaaccc aatctcaaaa gctgccaatt ctgattctgt   20700
      gccacgtagt gcccgatgta atagtggatg aagtcgttga atcctggggc aacctatttt   20760
      acagatgtgg ggaaaagcaa ctttaagtac cctgcccaca gatcacaaag aaagtaagtg   20820
      acagagctcc agtgtttcat ccctgggttc caaggacagg gagagagaag ccagggtggg   20880
      atctcactgc tccccggtgc ctccttccta taatccatac agattcgaaa gcgcagggca   20940
   10 ggtttggaaa aagagagaag ggtggaagga gcagaccagt ctggcctagg ctgcagcccc   21000
      tcacgcatcc ctctctccgc agatgtgtcc gagtacagct gccgcgagct gcactacacc   21060
      cgcttcctga cagacggccc atgccgcagc gccaagccgg tcaccgagtt ggtgtgctcc   21120
      ggccagtgcg gccccgcgcg gctgctgccc aacgccatcg ggcgcgtgaa gtggtggcgc   21180
      ccgaacggac cggatttccg ctgcatcccg gatcgctacc gcgcgcagcg ggtgcagctg   21240
   15 ctgtgccccg ggggcgcggc gccgcgctcg cgcaaggtgc gtctggtggc ctcgtgcaag   21300
      tgcaagcgcc tcacccgctt ccacaaccag tcggagctca aggacttcgg gccggagacc   21360
      gcgcggccgc agaagggtcg caagccgcgg cccggcgccc ggggagccaa agccaaccag   21420
      gcggagctgg agaacgccta ctagagcgag cccgcgccta tgcagccccc gcgcgatccg   21480
      attcgttttc agtgtaaagc ctgcagccca ggccaggggt gccaaacttt ccagaccgtg   21540
   20 tggagttccc agcccagtag agaccgcagg tccttctgcc cgctgcgggg gatggggagg   21600
      gggtgggggtt cccgcgggcg aggagaggaa gcttgagtcc cagactctgc ctagccccgg   21660
      gtgggatggg ggtctttcta ccctcgccgg acctatacag gacaaggcag tgtttccacc   21720
      ttaaagggaa gggagtgtgg aacgaaagac ctgggactgg ttatggacgt acagtaagat   21780
      ctactccttc cacccaaatg taaagcctgc gtgggctaga tagggtttct gaccctgacc   21840
   25 tggccactga gtgtgatgtt gggctacgtg gttctctttt ggtacggtct tctttgtaaa   21900
      atagggaccg gaactctgct gagattccaa ggattggggt accccgtgta gactggtgag   21960
      agagaggaga acaggggagg ggttagggga gagattgtgg tgggcaaccg cctagaagaa   22020
      gctgtttgtt ggctcccagc ctcgccgcct cagaggtttg gcttccccca ctccttcctc   22080
      tcaaatctgc cttcaaatcc atatctggga tagggaaggc cagggtccga gagatggtgg   22140
   30 aagggccaga aatcacactc ctggcccccc gaagagcagt gtcccgcccc caactgcctt   22200
      gtcatattgt aaagggatttt tctacacaac agtttaaggt cgttgagga aactgggctt   22260
      gccagtcacc tcccatcctt gtcccttgcc aggacaccac ctcctgcctg ccacccacgg   22320
      acacatttct gtctagaaac agagcgtcgt cgtgctgtcc tctgagacag catatcttac   22380
      attaaaaaga ataatacggg gggggggggc ggaggcgca agtgttatac atatgctgag   22440
   35 aagctgtcag gcgccacagc accacccaca atcttttgt aaatcatttc cagacacctc   22500
      ttactttctg tgtagatttt aattgttaaa aggggaggag agagagcgtt tgtaacagaa   22560
      gcacatggag gggggggtag gggggttggg gctggtgagt ttggcgaact ttccatgtga   22620
      gactcatcca caaagactga aagccgcgtt ttttttttta agagttcagt gacatattta   22680
      ttttctcatt taagttatttt atgccaacat tttttcttg tagagaaagg cagtgttaat   22740
   40 atcgctttgt gaagcacaag tgtgtgtggt ttttcgtttt ttgtttttc cccgaccaga   22800
      ggcattgtta ataaagacaa tgaatctcga gcaggaggct gtggtcttgt tttgtcaacc   22860
      acacacaatg tctcgccact gtcatctcac tcccttccct tggtcacaag acccaaacct   22920
      tgacaacacc tccgactgct ctctggtagc ccttgtggca atacgtgttt cctttgaaaa   22980
      gtcacattca tccttccctt tgcaaacctg gctctcattc cccagctggg tcatcgtcat   23040
   45 accctcaccc cagcctccct ttagctgacc actctccaca ctgtcttcca aaagtgcacg   23100
      tttcaccgag ccagttccct ggtccaggtc atcccattgc tcctccttgc tccagaccct   23160
      tctcccacaa agatgttcat ctcccactcc atcaagcccc agtggccctg cggctatccc   23220
      tgtctcttca gttagctgaa tctacttgct gacaccacat gaattccttc ccctgtctta   23280
      aggttcatgg aactcttgcc tgccctgaa ccttccagga ctgtcccagc gtctgatgtg   23340
   50 tcctctctct tgtaaagccc caccccacta tttgattccc aattctagat cttcccttgt   23400
      tcattccttc acgggatagt gtctcatctg gccaagtcct gcttgatatt gggataaatg   23460
      caaagccaag tacaattgag gaccagttca tcattgggcc aagctttttc aaaatgtgaa   23520
      ttttacacct atagaagtgt aaaagccttc caaagcagag gcaatgcctg gctcttcctt   23580
      caacatcagg gctcctgctt tatgggtctg gtggggtagt acattcataa acccaacact   23640
   55 aggggtgtga aagcaagatg attgggagtt cgaggccaat cttggctatg aggccctgtc   23700
```

```
     tcaacctctc ctccctccct ccagggtttt gttttgtttt gttttttttga tttgaaactg   23760
     caacacttta aatccagtca agtgcatctt tgcgtgaggg gaactctatc cctaatataa   23820
     gcttccatct tgatttgtgt atgtgcacac tgggggttga acctgggcct ttgtacctgc   23880
     cgggcaagct ctctactgct ctaaacccag ccctcactgg ctttctgttt caactcccaa   23940
  5  tgaattcccc taaatgaatt atcaatatca tgtctttgaa aaataccatt gagtgctgct   24000
     ggtgtccctg tggttccaga ttccaggaag gactttttcag ggaatccagg catcctgaag   24060
     aatgtcttag agcaggaggc catggagacc ttggccagcc ccacaaggca gtgtggtgca   24120
     gagggtgagg atggaggcag gcttgcaatt gaagctgaga cagggtactc aggattaaaa   24180
     agcttccccc aaaacaattc caagatcagt tcctggtact tgcacctgtt cagctatgca   24240
 10  gagcccagtg ggcataggtg aagacaccgg ttgtactgtc atgtactaac tgtgcttcag   24300
     agccggcaga gacaaataat gttatggtga ccccagggga cagtgattcc agaaggaaca   24360
     cagaagagag tgctgctaga ggctgcctga aggagaaggg gtcccagact ctctaagcaa   24420
     agactccact cacataaaga cacaggctga gcagagctgg ccgtggatgc agggagccca   24480
     tccaccatcc tttagcatgc ccttgtattc ccatcacatg ccagggatga ggggcatcag   24540
 15  agagtccaag tgatgcccaa acccaaacac acctaggact tgctttctgg gacagacaga   24600
     tgcaggagag actaggttgg gctgtgatcc cattaccaca aagagggaaa aaacaaaaaa   24660
     caaacaaaca aacaaaaaaa aacaaaacaa aacaaaaaaa aacccaaggt ccaaattgta   24720
     ggtcaggtta gagtttattt atggaaagtt atattctacc tccatggggt ctacaaggct   24780
     ggcgcccatc agaaagaaca aacaacaggc tgatctggga ggggtggtac tctatggcag   24840
 20  ggagcacgtg tgcttggggt acagccagac acgggcttg tattaatcac agggcttgta   24900
     ttaataggct gagagtcaag cagacagaga gacagaagga aacacacaca cacacacaca   24960
     cacacacaca cacacacaca catgcacaca ccactcactt ctcactcgaa gagcccctac   25020
     ttacattcta agaacaaacc attcctcctc ataaaggaga caaagttgca gaaacccaaa   25080
     agagccacag ggtccccact ctctttgaaa tgacttggac ttgttgcagg gaagacagag   25140
 25  gggtctgcag aggcttcctg ggtgacccag agccacagac actgaaatct ggtgctgaga   25200
     cctgtataaa ccctcttcca caggttccct gaaaggagcc cacattcccc aaccctgtct   25260
     cctgaccact gaggatgaga gcacttgggc cttccccatc cttggagtgc accctggttt   25320
     ccccatctga gggcacatga ggtctcaggt cttgggaaag ttccacaagt attgaaagtg   25380
     ttcttgtttt gtttgtgatt taatttaggt gtatgagtgc ttttgcttga atatatgcct   25440
 30  gtgtagcatt tacaagcctg gtgcctgagg agatcagaag atggcatcag ataccctgga   25500
     actggacttg cagacagtta tgagccactg tgtgggtgct aggaacagaa cctggatcct   25560
     ccggaagagc agacagccag cgctcttagc cactaagcca tcactgaggt tctttctgtg   25620
     gctaaagaga caggagacaa aggagagttt cttttagtca ataggaccat gaatgttcct   25680
     cgtaacgtga gactagggca gggtgatccc ccagtgacac cgatggccct gtgtagttat   25740
 35  tagcagctct agtcttattc cttaataagt cccagtttgg ggcaggagat atgtattccc   25800
     tgctttgaag tggctgaggt ccagttatct acttccaagt acttgtttct ctttctggag   25860
     ttggggaagc tccctgcctg cctgtaaatg tgtccattct tcaaccttag acaagatcac   25920
     tttccctgag cagtcaggcc agtccaaagc ccttcaattt agctttcata aggaacaccc   25980
     cttttgttgg gtggaggtag cacttgcctt gaatcccagc attaagaagg cagagacagt   26040
 40  cggatctctg tgagttcaca gccagcctgg tctacggagt gagttccaag acagccaggc   26100
     ctacacagag aaaccctgtc tcgaaaaaaa caaaaacaaa agaaataaag aaaaagaaaa   26160
     caaaaacgaa caaacagaaa aacaagccag agtgtttgtc cccgtatttt attaatcata   26220
     ttttttgtccc tttgccattt tagactaaaa gactcgggaa agcaggtctc tctctgtttc   26280
     tcatccggac acacccagaa ccagatgtat ggaagatggc taatgtgctg cagttgcaca   26340
 45  tctggggctg ggtggattgg ttagatggca tgggctgggt gtggttacga tgactgcagg   26400
     agcaaggagt atgtggtgca tagcaaacga ggaagtttgc acagaacaac actgtgtgta   26460
     ctgatgtgca ggtatgggca catgcaagca gaagccaagg gacagcctta gggtagtgtt   26520
     tccacagacc cctcccccct tttaacatgg gcatctctca ttggcctgga gcttgccaac   26580
     tgggctgggc tggctagctt gtaggtccca gggatctgca tatctctgcc tccctagtgc   26640
 50  tgggattaca gtcatatatg agcacacctg gctttttat gtgggttctg ggctttgaac   26700
     ccagatctga gtgcttgcaa ggcaatcggt tgaatgactg cttcatctcc ccagaccctg   26760
     ggattctact ttctattaaa gtatttctat taaatcaatg agccctgcc cctgcactca   26820
     gcagttctta ggcctgctga gagtcaagtg gggagtgaga gcaagcctcg agaccccatc   26880
     agcgaagcag aggacaaaga aatgaaaact tgggattcga ggctcgggat atggagatac   26940
 55  agaaagggtc agggaaggaa atgaaccaga tgaatagagg caggaagggt agggccctgc   27000
```

```
     atacatggaa cctggtgtac atgttatctg catggggttt gcattgcaat ggctcttcag   27060
     caggttcacc acactgggaa acagaagcca aaaagaagag taggtggtgt tggagtcaga   27120
     tactgtcagt catgcctgaa gaaatggaag caattaacga tgcgccgcaa ttaggatatt   27180
     agctccctga agaaaggcaa gaagctgggc tgtgggcact gaagggagct ttgaatgatg   27240
  5  tcacattctc tgtatgccta gcagggcagt attggagact gagacttgac ttgtgtgtcc   27300
     atatgattcc tccttttcct acagtcatct ggggctcctg agcttcgtcc ttgtccaaga   27360
     acctggagct ggcagtgggc agctgcagtg atagatgtct gcaagaaaga tctgaaaaga   27420
     gggaggaaga tgaaggaccc agaggaccac cgacctctgc tgcctgacaa agctgcagga   27480
     ccagtctctc ctacagatgg gagacagagg cgagagatga atggtcaggg gaggagtcag   27540
 10  agaaaggaga gggtgaggca gagaccaaag gagggaaaca cttgtgctct acagctactg   27600
     actgagtacc agctgcgtgg cagacagcca atgccaaggc tcggctgatc atggcacctc   27660
     gtgggactcc tagcccagtg ctggcagagg ggagtgctga atggtgcatg gtttggatat   27720
     gatctgaatg tggtccagcc ctagtttcct tccagttgct gggataaagc accctgacca   27780
     aagctacttt tttgtttgtt tgttttggtt tggttttgtt tggtttttcg aggcagggtt   27840
 15  tctctgtatc accctagctg tcctggaact cactctgtag accaggctgg cctcgaactc   27900
     agaaatcccc ctgcctctgc ctcctaagtg ctggaattaa aggcctgcgc caccactgcc   27960
     ggcccaaagc tactttaaga gagagagagg aatgtataag tattataatt ccaggttata   28020
     gttcattgct gtagaattgg agtcttcata ttccaggtaa tctcccacag acatgccaca   28080
     aaacaacctg ttctacgaaa tctctcatgg actcccttcc ccagtaattc taaactgtgt   28140
 20  caaatctaca agaaatagtg acagtcacag tctctaacgt tttgggcatg agtctgaagt   28200
     ctcattgcta agtactggga agatgaaaac tttacctagt gtcagcattt ggagcagagc   28260
     cttttgggatt tgagatggtc tttttgcagag ctcctaatgg ctacatggag agagggggcc   28320
     tgggagagac ccatacacct tttgctgcct tatgtcacct gacctgctcc ttgggaagct   28380
     ctagcaagaa ggccttccct ggatcaccca ccaccttgca cctccagaac tcagagccaa   28440
 25  attaaacttt cttgttactg tcgtcaaagc acagtcggtc tgggttgtat cactgtcaat   28500
     gggaaacaga cttgcctgga tggataactt gtacattgca taatgtctag aaatgaaaag   28560
     tcctatagag aaaaagaaaa ttagctggca cacagataga ggccctggag gaggctggct   28620
     ttgtcctccc cgaggaggtg gcgagtaagg tgtaaatgtt catggatgta aatgggccca   28680
     tatatgaggg tctggggtaa caagaaggcc tgtgaatata aagcactgaa ggtatgtcta   28740
 30  gtctggagaa ggtcactaca gagagttctc caactcagtg cccatacaca cacacacaca   28800
     cacacacaca cacacacaca cacacacaca ccacaaagaa aaaaaggaag aaaaatctga   28860
     gagcaagtac agtacttaaa attgtgtgat tgtgtgtgtg actctgatgt cacatgctca   28920
     tcttgcccta tgagttgaaa accaaatggc ccctgagagg cataacaacc acactgttgg   28980
     ctgtgtgctc acgtttttct taaagcgtct gtctggtttg ctgctagcat caggcagact   29040
 35  tgcagcagac tacatatgct cagccctgaa gtccttctag ggtgcatgtc tcttcagaat   29100
     ttcagaaagt catctgtggc tccaggaccg cctgcactct ccctctgccg cgaggctgca   29160
     gactctaggc tggggtggaa gcaacgctta cctctgggac aagtataaca tgttggcttt   29220
     tctttccctc tgtggctcca acctggacat aaaatagatg caagctgtgt aataaatatt   29280
     tcctcccgtc cacttagttc tcaacaataa ctactctgag agcacttatt aataggtggc   29340
 40  ttagacataa gctttggctc attcccccac tagctcttac ttctttaact ctttcaaacc   29400
     attctgtgtc ttccacatgg ttagttacct ctccttccat cctggttcgc ttcttccttc   29460
     gagtcgccct cagtgtctct aggtgatgct tgtaagatat tctttctaca aagctgagag   29520
     tggtggcact ctgggagttc aaagccagcc tgatctacac agcaagctcc aggatatcca   29580
     gggcaatgtt gggaaaacct ttctcaaaca aaaagagggg ttcagttgtc aggaggagac   29640
 45  ccatgggtta agaagtctag acgagccatg gtgatgcata cctttcatcc aagcacttag   29700
     gaggcaaaga aaggtgaaac tctttgactt tgaggccagc taggttacat agtgataccc   29760
     tgcttagtgt gtgtgtgtgt gtgtgtgtgt gtgtgtgtgt gtgtgtaatt taaaagtcta   29820
     aaaatgcatt cttttaaaaa tatgtataag tatttgcctg cacatatgta tgtatgtatg   29880
     tataccatgt gtgtgtctgg tgctgaagga ctaggcatag actccctaga actagagtca   29940
 50  tagacagttg tgacactccc caaccccca ccatgtgggt gcttgaagct aaactcctgt   30000
     cctttgtaaa gcagcaggtg tctatgaacc ctgaaccatc tctccagtct ccagatgtgc   30060
     attctcaaag aggagtcctt catatttccc taaactgaac atccttatca gtgagcatcc   30120
     tcgagtcacc aaagctactg caaaccctct tagggaacat tcactattca cttctacttg   30180
     gctcatgaaa cttaagtaca cacacacaaa cacacacaca cacacagagt catgcactca   30240
 55  caaaagcatg catgtacacc attcttatta gactatgctt tgctaaaaga ctttcctaga   30300
```

```
           tactttaaaa catcacttct gcctttggt gggcaggttc caagattggt actggcgtac   30360
           tggaaactga acaaggtaga gatctagaaa tcacagcagg tcagaagggc cagcctgtac   30420
           aagagagagt tccacacctt ccaggaacac tgagcagggg gctgggacct tgcctctcag   30480
           cccaagaaac tagtgcgttt cctgtatgca tgcctctcag agattccata agatctgcct   30540
     5     tctgccataa gatctcctgc atccagacaa gcctaggga agttgagagg ctgcctgagt   30600
           ctctcccaca ggcccttct tgcctggcag tattttttta tctggaggag aggaatcagg   30660
           gtgggaatga tcaaatacaa ttatcaagga aaaagtaaaa aacatatata tatatatatt   30720
           aactgatcta gggagctggc tcagcagtta agagttctgg ctgcccttgc ttcagatctt   30780
           gctttgattc ccagcaccca catgatggct ttcaactgta tctctgcttc caggggatcc   30840
    10     aacagcctct tctgacctcc atagacaaga cctagtcctc tgcaagagca ccaaatgctc   30900
           ttatctgttg atccatctct ctagcctcat gccagatcat ttaaaactac tggacactgt   30960
           cccattttac gaagatgtca ctgcccagtc atttgccatg agtggatatt tcgattcttt   31020
           ctatgttctc acccttgcaa tttataagaa agatatctgc atttgtctcc tgagagaaca   31080
    15     aagggtggag ggctactgag atggctctag gggtaaaggt gcttgccaca aaatctgaca   31140
           acttaagttt ggtcttggaa tccacatggt ggagagagag aagagattcc cgtaagttgt   31200
           cctcaaactt cccacacatg tgctgtgggt tatgtgtaac cccaataagt aaagatagtt   31260
           ttaaacacta cataaggtag ggtttcttca tgaccccaag gaatgatgcc cctgatagag   31320
           cttatgctga aaccccatct ccattgtgcc atctggaaag agacaatgc atcccggaaa   31380
           cagaatcttc atgaatggat taatgagcta ttaagaagt ggcttggtta ttgcacatgc   31440
    20     tggcggcgta atgacctcca ccatgatgtt atccagcatg aaggtcctca ccagaagtca   31500
           tacaaatctt cttaggcttc cagagtcgtg agcaaaaaaa gcacacctct aaataaatta   31560
           actagcctca ggtagttaac caccgaaaat gaaccaaggc agttctaata caaaaccact   31620
           tcccttccct gttcaaacca cagtgcccta ttatctaaaa gataaacttc aagccaagct   31680
           tttaggttgc cagtatttat gtaacaacaa ggcccgttga cacacatctg taactcctag   31740
    25     tactgggcct caggggcaga gacaggtgga gccctggagt ttgaattcca ggttctgtga   31800
           gaaactctgt ctgaaaagac aatatggtga gtgacccggg aggatatctg atattgactt   31860
           ctggccaaca cacagccatc tctgcacatc tgtagttgca agccttttgc actaagtttg   31920
           gccagagtca gagtttgcaa gtgtttgtgg actgaatgca cgtgttgctg gtgatctaca   31980
           aagtcaccct ccttctcaag ctagcagcac tggcttcggc cagctgctca ttcaagcctc   32040
    30     tttgcagagt catcacgggg atgggggagc agggcccctc cctagaacac caagcctgtg   32100
           gttgtttatt caggacatta ttgagggcca agatgacaga taactctatc acttggccaa   32160
           cagtcgggtg ttgcggtgtt aggttatttc tgtgtctgca gaaaacagtg caacctggac   32220
           aaaagaaata aatgatatca ttttttcattc aggcaactag attccgtggt acaaaaggct   32280
           ccctggggaa cgaggccggg acagcgcggc tcctgagtcg ctattccgt ctgtcaactt   32340
    35     ctctaatctc ttgattcct ccctctgtct gtttccttcc tcttgctggg gccagtgga   32400
           gtctgtgtac tcacagggag gagggtggca aagccctggt cctctacggg ctgggggaag   32460
           gggggaagct gtcggcccag tgacttttc ccctttctct ttttcttaga aaccagtctc   32520
           aatttaagat aatgagtctc ctcattcacg tgtgctcact attcataggg acttatccac   32580
           ccccgccctg tcaatctggc taagtaagac aagtcaaatt taaaagggaa cgttttctta   32640
    40     aaaatgtggc tggaccgtgt gccggcacga aaccagggat ggcggtctaa gttacatgct   32700
           ctctgccagc cccggtgcct tttcctttcg gaaaggagac ccggaggtaa aacgaagttg   32760
           ccaactttg atgatggtgt gcgccgggtg actctttaaa atgtcatcca tacctgggat   32820
           agggaaggct cttcagggag tcatctagcc ctcccttcag gaaaagattc cacttccggt   32880
           ttagttagct tccacctggt cccttatccg ctgtctctgc ccactagtcc tcatccatcc   32940
    45     ggtttccgcc ctcatccacc ttgcccttt agttcctaga aagcagcacc gtagtcttgg   33000
           caggtgggcc attggtcact ccgctaccac tgttaccatg gccaccaagg tgtcatttaa   33060
           atatgagctc actgagtcct gcgggatggc ttggttggta atatgcttgc tgcaaaatcg   33120
           tgagaactgg agttcaattc ccagcacatg gatgtatttc cagcacctgg aaggcaggga   33180
           gcagagatct taaagctcct ggccagacag cccagcctaa ttagtaatca gtgagagacc   33240
    50     ctgtctcaag aaacaagatg gaacatcaaa ggtcaacctc ttgtctccac acacacaaat   33300
           acacacatgc acatacatcc acacacaggc aaacacatgc acacacctga acaccctcca   33360
           caaatacata cataaaaaaa taaatacata cacacataca tacatacacc aacattccct   33420
           ctccttagtc tcctggctac gctcttgtca cccccactaa ggcttcaact tcttctattt   33480
           cttcatcttg actcctctgt actttgcatg cctttтccag caaaggcttt tctttaaatc   33540
    55     tccgtcattc ataaactccc tctaaatttc ttccctgcc cttttctttc tctctaggga   33600
```

```
gataaagaca cacactacaa agtcaccgtg ggaccagttt attcacccac ccacccctgc   33660
ttctgttcat ccggccagct aagtagtcca acctctctgg tgctgtaccc tggaccctgg   33720
cttcaccaca gctcctccat gctacccagc cctgcaaacc ttcagcctag cctctggttc   33780
tccaaccagc acaggcccag tctggcttct atgtcctaga aatctccttc attctctcca   33840
tttccctcct gaatctacca ccttctttct cccttctcct gacctctaat gtcttggtca   33900
aacgattaca aggaagccaa tgaaattagc agtttggggt acctcagagt cagcagggga   33960
gctgggatga attcacattt ccaggccttt gctttgctcc ccggattctg acaggcagtt   34020
ccgaagctga gtccaggaag ctgaatttaa aatcacactc cagctgggtt ctgaggcagc   34080
cctaccacat cagctggccc tgactgagct gtgtctgggt ggcagtggtg ctggtggtgc   34140
tggtggtgct ggtggtggtg gtggtggtgg tggtggtggt ggtggtggtg tgtgtgtgtg   34200
tttttctgctt ttacaaaact tttctaattc ttatacaaag gacaaatctg cctcatatag   34260
gcagaaagat gacttatgcc tatataagat ataaagatga ctttatgcca cttattagca   34320
atagttactg tcaaaagtaa ttctatttat acacccttat acatggtatt gcttttgttg   34380
gagactctaa aatccagatt atgtatttaa aaaaaaattc cccagtcctt aaaaggtgaa   34440
gaatggaccc agatagaagg tcacggcaca agtatggagt cggagtgtgg agtcctgcca   34500
atggtctgga cagaagcatc cagagagggt ccaagacaaa tgcctcgcct cctaaggaac   34560
actggcagcc ctgatgaggt accagagatt gctaagtgga ggaatacagg atcagaccca   34620
tggaggggct taaagcgtga ctgtagcagc cctccgctga gggctccag gtgggcgccc    34680
aaggtgctgc agtgggagcc acatgagagg tgatgtcttg gagtcacctc gggtaccatt   34740
gtttagggag gtggggattt gtggtgtgga gacaggcagc ctcaaggatg cttttcaaca   34800
atggttgatg agttggaact aaaacagggg ccatcacact ggctcccata gctctgggct   34860
tgccagcttc cacatctgcc ccccacccc tgtctggcac cagctcaagc tctgtgattc    34920
tacacatcca aaagaggaag agtagcctac tgggcatgcc acctcttctg gaccatcagg    34980
tgagagtgtg gcaagcccta ggctcctgtc caggatgcag ggctgccaga taggatgctc   35040
agctatctcc tgagctggaa ctattttagg aataaggatt atgcccgccc ggggttggcc   35100
agcaccccag cagcctgtgc ttgcgtaaaa gcaagtgctg ttgatttatc taaaaacaga   35160
gccgtggacc cacccacagg acaagtatgt atgcatctgt ttcatgtatc tgaaaagcga   35220
cacaaccatt tttcacatca tggcatcttc ctaaccccca ttcttttttg ttttgttttt   35280
ttgagacagg gtttctctgt gtagtcctgg ctgtcctgga actcactttg tagaccaggc   35340
tggcctcgaa ctcagaaatc ctgggattaa aggtgtgtgc caccacgccc ggccctaacc   35400
cccattctta atggtgatcc agtggttgaa atttcgggcc acacacatgt ccattaggga   35460
ttagctgctg tcttctgagc tacctggtac aatctttatc ccctggggcc tgggctcctg   35520
atccctgact cgggcccgat caagtccagt tcctgggccc gatcaagtcc agttcctggg   35580
cccgaacaag tccagtccct agctcgatta gctcatcctg ctccctggc ctgttcttac    35640
ttacactctt ccccttgctc tggacttgtt gctttcttta ctcaagttgt ctgccacagt   35700
ccctaagcca cctctgtaag acaactaaga taatacttcc ctcaagcacg gaaagtcctg   35760
agtcaccaca ccctctggag gtgtgtggac acatgttcat gcgtgtggtt gcgcttacgt   35820
acgtgtgc                                                           35828
```

```
tagaggagaa gtctttgggg agggtttgct ctgagcacac ccctttccct ccctccgggg     60
ctgagggaaa catgggacca gccctgcccc agcctgtcct cattggctgg catgaagcag    120
agaggggctt taaaaaggcg accgtgtctc ggctggagac cagagcctgt gctactggaa    180
ggtggcgtgc cctcctctgg ctggtaccat gcagctccca ctggccctgt gtctcgtctg    240
cctgctggta cacacagcct tccgtgtagt ggagggccag gggtggcagg cgttcaagaa    300
tgatgccacg gaaatcatcc ccgagctcgg agagtacccc gagcctccac cggagctgga    360
gaacaacaag accatgaacc gggcggagaa cggagggcgg cctccccacc accccttgta    420
gaccaaaggt atggggtgga ggagagaatt cttagtaaaa gatcctgggg aggttttaga    480
aacttctctt tgggaggctt ggaagactgg ggtagaccca gtgaagattg ctggcctctg    540
ccagcactgg tcgaggaaca gtcttgcctg gaggtggggg aagaatggct cgctggtgca    600
```

```
      gccttcaaat tcaggtgcag aggcatgagg caacagacgc tggtgagagc ccagggcagg     660
      gaggacgctg gggtggtgag ggtatggcat cagggcatca gaacaggctc aggggctcag     720
      aaaagaaaag gtttcaaaga atctcctcct gggaatatag gagccacgtc cagctgctgg     780
      taccactggg aaggaacaa ggtaagggag cctcccatcc acagaacagc acctgtgggg     840
5     caccggacac tctatgctgg tggtggctgt ccccaccaca cagacccaca tcatggaatc     900
      cccaggaggt gaacccccag ctcgaagggg aagaaacagg ttccaggcac tcagtaactt     960
      ggtagtgaga agagctgagg tgtgaacctg gtttgatcca actgcaagat agccctggtg    1020
      tgtggggggg tgtgggggac agatctccac aaagcagtgg ggaggaaggc cagagaggca    1080
      cccctgcagt gtgcattgcc catggcctgc ccaggagct ggcacttgaa ggaatgggag    1140
10    ttttcggcac agttttagcc cctgacatgg gtgcagctga gtccaggccc tggaggggag    1200
      agcagcatcc tctgtgcagg agtagggaca tctgtcctca gcagccaccc cagtcccaac    1260
      cttgcctcat tccaggggag ggagaaggaa gaggaaccct gggttcctgg tcaggcctgc    1320
      acagagaagc ccaggtgaca gtgtgcatct ggctctataa ttggcaggaa tcctgaggcc    1380
      atgggggcgt ctgaaatgac acttcagact aagagcttcc ctgtcctctg gccattatcc    1440
15    aggtggcaga gaagtccact gcccaggctc ctggaccca gccctccccg cctcacaacc    1500
      tgttgggact atggggtgct aaaaagggca actgcatggg aggccagcca ggaccctccg    1560
      tattcaaaat ggaggacaag ggcgcctccc cccacagctc cccttctagg caaggtcagc    1620
      tgggctccag cgactgcctg aagggctgta aggaacccaa acacaaaatg tccaccttgc    1680
      tggactccca cgagaggcca cagcccctga ggaagccaca tgctcaaaac aaagtcatga    1740
20    tctgcagagg aagtgcctgg cctaggggcg ctattctcga aaagccgcaa aatgcccct    1800
      tccctgggca aatgcccccc tgaccacaca cacattccag ccctgcagag gtgaggatgc    1860
      aaaccagccc acagaccaga aagcagcccc agacgatggc agtggccaca tctcccctgc    1920
      tgtgcttgct cttcagagtg ggggtggggg gtggccttct ctgtcccctc tctggtttgg    1980
      tcttaagact atttttcatt ctttcttgtc acattggaac tatccccatg aaacctttgg    2040
25    gggtggactg gtactcacac gacgaccagc tatttaaaaa gctcccaccc atctaagtcc    2100
      accataggag acatggtcaa ggtgtgtgca ggggatcagg ccaggcctcg gagcccaatc    2160
      tctgcctgcc cagggagtat caccatgagg cgcccattca gataacacag aacaagaaat    2220
      gtgcccagca gagagccagg tcaatgtttg tggcagctga acctgtaggt tttgggtcag    2280
      agctcagggc ccctatggta ggaaagtaac gacagtaaaa agcagccctc agctccatcc    2340
30    cccagcccag cctcccatgg atgctcgaac gcagagcctc cactcttgcc ggagccaaaa    2400
      ggtgctggga ccccagggaa gtggagtccg gagatgcagc ccagcctttt gggcaagttc    2460
      ttttctctgg ctgggcctca gtattctcat tgataatgag ggggttggac acactgcctt    2520
      tgattccttt caagtctaat gaattcctgt cctgatcacc tcccctttcag tccctcgcct    2580
      ccacagcagc tgccctgatt tattaccttc aattaacctc tactcctttc tccatcccct    2640
35    gtccacccct cccaagtggc tggaaaagga atttgggaga agccagagcc aggcagaagg    2700
      tgtgctgagt acttaccctg cccaggccag ggaccctgcg gcacaagtgt ggcttaaatc    2760
      ataagaagac cccagaagag aaatgataat aataatacat aacagccgac gctttcagct    2820
      atatgtgcca aatggtattt tctgcattgc gtgtgtaatg gattaactcg caatgcttgg    2880
      ggcggcccat tttgcagaca ggaagaagag agaggttaag gaacttgccc aagatgacac    2940
40    ctgcagtgag cgatggagcc ctggtgtttg aaccccagca gtcatttggc tccgagggga    3000
      cagggtgcgc aggagagctt tccaccagct ctagagcatc tgggaccttc ctgcaataga    3060
      tgttcagggg caaaagcctc tggagacagg cttggcaaaa gcagggctgg ggtggagaga    3120
      gacgggccgg tccagggcag gggtggccag gcgggcggcc accctcacgc gcgcctctct    3180
      ccacagacgt gtccgagtac agctgccgcg agctgcactt cacccgctac gtgaccgatg    3240
45    ggccgtgccg cagcgccaag ccggtcaccg agctggtgtg ctccggccag tgcggcccgg    3300
      cgcgcctgct gcccaacgcc atcggccgcg caagtggtg gcgacctagt gggcccgact    3360
      tccgctgcat ccccgaccgc taccgcgcgc agcgcgtgca gctgctgtgt cccggtggtg    3420
      aggcgccgcg cgcgcgcaag gtgcgcctgg tggcctcgtg caagtgcaag cgcctcaccc    3480
      gcttccacaa ccagtcggag ctcaaggact cgggaccga ggccgctcgg ccgcagaagg    3540
50    gccggaagcc gcggcccggc gcccggagcg ccaaagccaa ccaggccgag ctggagaacg    3600
      cctactagag cccgcccgcg ccctccca cggcgggcg ccccggccct gaacccgcgc    3660
      cccacatttc tgtcctctgc gcgtggtttg attgtttata tttcattgta aatgcctgca    3720
      acccagggca gggggctgag accttccagg ccctgaggaa tcccggcgc cggcaaggcc    3780
      cccctcagcc cgccagctga ggggtcccac ggggcagggg agggaattga gagtcacaga    3840
55    cactgagcca cgcagccccg cctctggggc cgcctacctt tgctggtccc acttcagagg    3900
```

```
aggcagaaat ggaagcattt tcaccgccct ggggttttaa gggagcggtg tgggagtggg    3960
aaagtccagg gactggttaa gaaagttgga taagattccc ccttgcacct cgctgcccat    4020
cagaaagcct gaggcgtgcc cagagcacaa gactgggggc aactgtagat gtggtttcta    4080
gtcctggctc tgccactaac ttgctgtgta accttgaact acacaattct ccttcgggac    4140
ctcaatttcc actttgtaaa atgagggtgg aggtgggaat aggatctcga ggagactatt    4200
ggcatatgat tccaaggact ccagtgcctt ttgaatgggc agaggtgaga gagagagaga    4260
gaaagagaga gaatgaatgc agttgcattg attcagtgcc aaggtcactt ccagaattca    4320
gagttgtgat gctctcttct gacagccaaa gatgaaaaac aaacagaaaa aaaaaagtaa    4380
agagtctatt tatggctgac atatttacgg ctgacaaact cctggaagaa gctatgctgc    4440
ttcccagcct ggcttccccg gatgtttggc tacctccacc cctccatctc aaagaaataa    4500
catcatccat tggggtagaa aaggagaggg tccgagggtg gtgggaggga tagaaatcac    4560
atccgcccca acttcccaaa gagcagcatc cctcccccga cccatagcca tgtttttaaag   4620
tcaccttccg aagagaagtg aaaggttcaa ggacactggc cttgcaggcc cgagggagca    4680
gccatcacaa actcacagac cagcacatcc cttttgagac accgccttct gcccaccact    4740
cacggacaca tttctgccta gaaaacagct tcttactgct cttacatgtg atggcatatc    4800
ttacactaaa agaatattat tggggggaaaa actacaagtg ctgtacatat gctgagaaac    4860
tgcagagcat aatagctgcc acccaaaaat ctttttgaaa atcatttcca gacaacctct    4920
tactttctgt gtagttttta attgttaaaa aaaaaaagtt ttaaacagaa gcacatgaca    4980
tatgaaagcc tgcaggactg gtcgtttttt tggcaattct tccacgtggg acttgtccac    5040
aagaatgaaa gtagtggttt ttaaagagtt aagttacata tttattttct cacttaagtt    5100
atttatgcaa aagttttct tgtagagaat gacaatgtta atattgcttt atgaattaac     5160
agtctgttct tccagagtcc agagacattg ttaataaaga caatgaatca tgaccgaaag    5220
gatgtggtct cattttgtca accacacatg acgtcatttc tgtcaaagtt gacacccttc    5280
tcttggtcac tagagctcca accttggaca caccttgac tgctctctgg tggcccttgt     5340
ggcaattatg tcttcctttg aaaagtcatg tttatcccctt cctttccaaa cccagaccgc   5400
atttcttcac ccagggcatg gtaataacct cagccttgta tccttttagc agcctcccct    5460
ccatgctggc ttccaaaatg ctgttctcat tgtatcactc ccctgctcaa aagccttcca    5520
tagctccccc ttgcccagga tcaagtgcag tttccctatc tgacatggga ggccttctct    5580
gcttgactcc cacctcccac tccaccaagc ttcctactga ctccaaatgg tcatgcagat    5640
ccctgcttcc ttagtttgcc atccacactt agcaccccca ataactaatc ctctttcttt    5700
aggattcaca ttacttgtca tctcttcccc taaccttcca gagatgttcc aatctcccat    5760
gatccctctc tcctctgagg ttccagcccc ttttgtctac accactactt tggttcctaa    5820
ttctgttttc catttgacag tcattcatgg aggaccagcc tggccaagtc ctgcttagta    5880
ctggcataga caacacaaag ccaagtacaa ttcaggacca gctcacagga aacttcatct    5940
tcttcgaagt gtggatttga tgcctcctgg gtagaaatgt aggatcttca aaagtgggcc    6000
agcctcctgc acttctctca aagtctcgcc tccccaaggt gtcttaatag tgctggatgc    6060
tagctgagtt agcatcttca gatgaagagt aaccctaaag ttactcttca gttgccctaa    6120
ggtgggatgg tcaactggaa agctttaaat taagtccagc ctaccttggg ggaacccacc    6180
cccacaaaga aagctgaggt ccctcctgat gacttgtcag tttaactacc aataacccac    6240
ttgaattaat catcatcatc aagtctttga taggtgtgag tgggtatcag tggccggtcc    6300
cttcctgggg ctccagcccc cgaggaggcc tcagtgagcc cctgcagaaa atccatgcat    6360
catgagtgtc tcagggccca gaatatgaga gcaggtagga aacagagaca tcttccatcc    6420
ctgagaggca gtgcggtcca gtgggtgggg acacgggctc tgggtcaggt ttgtgttgtt    6480
tgtttgtttg ttttgagaca gagtctcgct ctattgccca ggctggagtg cagtgtcaca    6540
atctcggctt actgcaactt ctgccttccc ggattcaagt gattctcctg cctcagcctc    6600
cagagtagct gggattacag gtgcgtgcca ccacgcctgg ctaatttttg tattttgat    6660
agagacgggg tttcaccatg ttggccaggc tagtctcgaa ctcttgacct caagtgatct    6720
gcctgcctcg gcctcccaaa gtgctgggat tacaggcgtg agccaccaca cccagcccca    6780
ggtggtgtt tgaatctgag gagactgaag caccaagggg ttaaatgttt tgcccacagc     6840
catacttggg ctcagttcct tgccctaccc ctcacttgag ctgcttagaa cctggtgggc    6900
acatgggcaa taaccaggtc acactgtttt gtaccaagtg ttatgggaat ccaagatagg    6960
agtaatttgc tctgtggagg ggatgaggga tagtggttag ggaaagcttc acaaagtggg    7020
tgttgcttag agattttcca ggtggagaag ggggcttcta ggcagaaggc atagcccaag    7080
caaagactgc aagtgcatgg ctgctcatgg gtagaagaga atccaccatt cctcaacatg    7140
taccgagtcc ttgccatgtg caaggcaaca tggggggtacc aggaattcca agcaatgtcc   7200
```

```
aaacctaggg tctgctttct gggacctgaa gatacaggat ggatcagccc aggctgcaat   7260
cccattacca cgaggggaa aaaaacctga aggctaaatt gtaggtcggg ttagaggtta   7320
tttatggaaa gttatattct acctacatgg ggtctataag cctggcgcca atcagaaaag   7380
gaacaaacaa cagacctagc tgggaggggc agcattttgt tgtaggggc ggggcacatg    7440
ttctgggggt acagccagac tcaggcttg tattaatagt ctgagagtaa gacagacaga    7500
gggatagaag gaaatagdgtc cctttctctc tctctctctc tctctctctc actctctctc  7560
tctctcacac acacacacag acacacacac acgctctgta ggggtctact tatgctccaa    7620
gtacaaatca ggccacattt acacaaggag gtaaaggaaa agaacgttgg aggagccaca    7680
ggaccccaaa attccctgtt ttccttgaat caggcaggac ttacgcagct gggagggtgg    7740
agagcctgca gaagccacct gcgagtaagc caagttcaga gtcacagaca ccaaaagctg    7800
gtgccatgtc ccacacccgc ccacctccca cctgctcctt gacacagccc tgtgctccac    7860
aacccggctc ccagatcatt gattatagct ctggggcctg caccgtcctt cctgccacat    7920
ccccacccca ttcttggaac ctgccctctg tcttctccct tgtccaaggg caggcaaggg    7980
ctcagctatt gggcagcttt gaccaacagc tgaggctcct tttgtggctg gagatgcagg    8040
aggcagggga atattcctct tagtcaatgc gaccatgtgc ctggtttgcc cagggtggtc    8100
tcgtttacac ctgtaggcca agcgtaatta ttaacagctc ccacttctac tctaaaaat    8160
gacccaatct gggcagtaaa ttatatggtg cccatgctat taagagctgc aacttgctgg    8220
gcgtggtggc tcacacctgt aatcccagta ctttgggacg tcaaggcggg tggatcacct    8280
gaggtcacga gttagagact ggcctggcca gcatggcaaa accccatctt tactaaaaat    8340
acaaaaatta gcaaggcatg gtggcatgca cctgtaatcc caggtactcg ggaggctgag    8400
acaggagaat ggcttgaacc caggaggcag aggttgcagt gagccaagat tgtgccactg    8460
ccctccagcc ctggcaacag agcaagactt catctcaaaa gaaaaaggat actgtcaatc    8520
actgcaggaa gaacccaggt aatgaatgag gagaagagag gggctgagtc accatagtgg    8580
cagcaccgac tcctgcagga aaggcgagac actgggtcat gggtactgaa gggtgccctg    8640
aatgacgttc tgctttagag accgaacctg agccctgaaa gtgcatgcct gttcatgggt    8700
gagagactaa attcatcatt ccttggcagg tactgaatcc tttcttacgg ctgccctcca    8760
atgcccaatt tccctacaat tgtctggggt gcctaagctt ctgcccacca agagggccag    8820
agctggcagc gagcagctgc aggtaggaga gataggtacc cataagggag gtgggaaaga    8880
gagatggaag gagaggggtg cagagcacac acctcccctg cctgacaact tcctgagggc    8940
tggtcatgcc agcagattta aggcggaggc aggggagatg gggcgggaga ggaagtgaaa    9000
aaggagaggg tggggatgga gaggaagaga gggtgatcat tcattcattc cattgctact    9060
gactggatgc cagctgtgag ccaggcacca ccctagctct gggcatgtgg ttgtaatctt    9120
ggagcctcat ggagctcaca gggagtgctg gcaaggagat ggataatgga cggataacaa    9180
ataaacattt agtacaatgt ccgggaatgg aaagttctcg aaagaaaaat aaagctggtg    9240
agcatataga cagccctgaa ggcggccagg ccaggcattt ctgaggaggt ggcatttgag    9300
c                                                                    9301
```

```
<210> 19
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer for PCR

<400> 19
ccggagctgg agaacaacaa g                                               21

<210> 20
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> PRimer for PCR
```

<400> 20

gcactggccg gagcacacc   19

<210> 21
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer for PCR

<400> 21

aggccaaccg cgagaagatg acc   23

<210> 22
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer for PCR

<400> 22

gaagtccagg gcgacgtagc a   21

<210> 23
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer for PCR

<400> 23

aagcttggta ccatgcagct cccac   25

<210> 24
<211> 50
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer for PCR

<400> 24

aagcttctac ttgtcatcgt cgtccttgta gtcgtaggcg ttctccagct   50

<210> 25
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer for PCR

<400> 25
gcactggccg gagcacacc   19

5   <210> 26
     <211> 39
     <212> DNA
     <213> Artificial Sequence

10   <220>
     <223> Primer for PCR

     <400> 26
     gtcgtcggat ccatggggtg gcaggcgttc aagaatgat   39
15

     <210> 27
     <211> 57
     <212> DNA
     <213> Artificial Sequence

20   <220>
     <223> Primer for PCR

     <400> 27
25   gtcgtcaagc ttctacttgt catcgtcctt gtagtcgtag gcgttctcca gctcggc   57

     <210> 28
     <211> 29
     <212> DNA
30   <213> Artificial Sequence

     <220>
     <223> Primer for PCR

35   <400> 28
     gacttggatc ccaggggtgg caggcgttc   29

     <210> 29
     <211> 29
40   <212> DNA
     <213> Artificial Sequence

     <220>
     <223> Primer for PCR
45

     <400> 29
     agcataagct tctagtaggc gttctccag   29

     <210> 30
50   <211> 29
     <212> DNA
     <213> Artificial Sequence

     <220>
55   <223> Primer for PCR

<400> 30
gacttggatc cgaagggaaa aagaaaggg   29

<210> 31
<211> 29
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer for PCR

<400> 31
agcataagct tttaatccaa atcgatgga   _   29

<210> 32
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer for PCR

<400> 32
actacgagct cggccccacc acccatcaac aag   33

<210> 33
<211> 34
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer for PCR

<400> 33
acttagaagc tttcagtcct cagccccctc ttcc   34

<210> 34
<211> 66
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer for PCR

<400> 34
aatctggatc cataacttcg tatagcatac attatacgaa gttatctgca ggattcgagg   60
gcccct   66

<210> 35
<211> 82
<212> DNA
<213> Artificial Sequence

<220>

<223> Primer for PCR

<400> 35
aatctgaatt ccaccggtgt taattaaata acttcgtata atgtatgcta tacgaagtta   60
tagatctaga gtcagcttct ga   82

<210> 36
<211> 62
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer for PCR

<400> 36
atttaggtga cactatagaa ctcgagcagc tgaagcttaa ccacatggtg gctcacaacc   60
at   62

<210> 37
<211> 54
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer for PCR

<400> 37
aacgacggcc agtgaatccg taatcatggt catgctgcca ggtggaggag ggca   54

<210> 38
<211> 31   <212> DNA
<213> Artificial Sequence

<220>
<223> Primer for PCR

<400> 38
attaccaccg gtgacacccg cttcctgaca g   31

<210> 39
<211> 61 .
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer for PCR

<400> 39
attacttaat taaacatggc gcgccatatg gccggcccct aattgcggcg catcgttaat   60
t   61

<210> 40
<211> 34
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer for PCR

<400> 40
attacggccg gccgcaaagg aattcaagat ctga   34

<210> 41
<211> 34
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer for PCR

<400> 41
attacggcgc gcccctcaca ggccgcaccc agct   34